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IN THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

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THE PITTSBURGH IMO METER

Precision Built TO WATCHMAKER STANDARDS TO PROVIDE PRECISION ACCURACY

Remember: PITTSBURGH IMO METERS WEAR IN WHERE OTHERS WEAR OUT

YOU choose a fine watch to provide years of accurate time-keeping without the annoyance and expense of frequent repairs and adjustments. Why not apply the same reasoning to the purchase of water meters? Select meters designed and built to give years of sustained accuracy without the expense and inconvenience of frequent repairs and service interruptions. You can when you buy the Pittsburgh IMO.

Until the advent of the IMO Meter, the acknowledged need for sustained, trickle-accurate measurement could not be satisfied. A revolutionary type of meter was required. To build it required an entirely new manufacturing procedure, using equipment and materials never before adopted by any meter manufacturer.

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THE MOST COMPLETE LINE OF WATER METERS IN THE WORLD

Municipalities in Wartime

Special Statements Prepared by the Army and the Navy for the Readers of THE AMERICAN CITY

War Department's Relation to Municipalities

By A. D. SURLES
Brigadier General, U. S. A.
Director, Bureau of Public Relations, War Department

THERE can be no question as to the importance of the municipal organization in our nation's war effort, as well as in the always essential work of safeguarding the lives and property of our urban population. The familiar pattern of daily American life centers about the services maintained by the modern community. Public health, police and fire protection, the supervision of utilities—these are but a few of the things for which the average American looks to the trained personnel of his city or town government.

In the present emergency, the people as well as the Federal Government have naturally turned first to the basic organization already existing in the representative American city, for the solution of the special problems now confronting us. The greater part of the actual defense operations have wisely been placed in the hands of a civilian agency, the Office of Civilian Defense. The War Department is glad of every opportunity to cooperate with this and the other government agencies which are prepared to assist in defense measures to be carried out within the cities.

In but few instances will the individual city government have occasion to deal directly with the War Department. City officials and our Army can work together most efficiently through the cooperation of local civil authorities and the commanders of nearby military posts and units. The special needs of a particular area are a matter of continuing interest and study to the military officials who know the area most intimately. These men will be found to have an excellent knowledge of local conditions and will welcome opportunities to confer with civil authorities.

How Local Governments Can Help the Navy

By A. J. HEPBURN
Rear Admiral, U. S. Navy (Ret.)
Director, Office of Public Relations, Department of the Navy

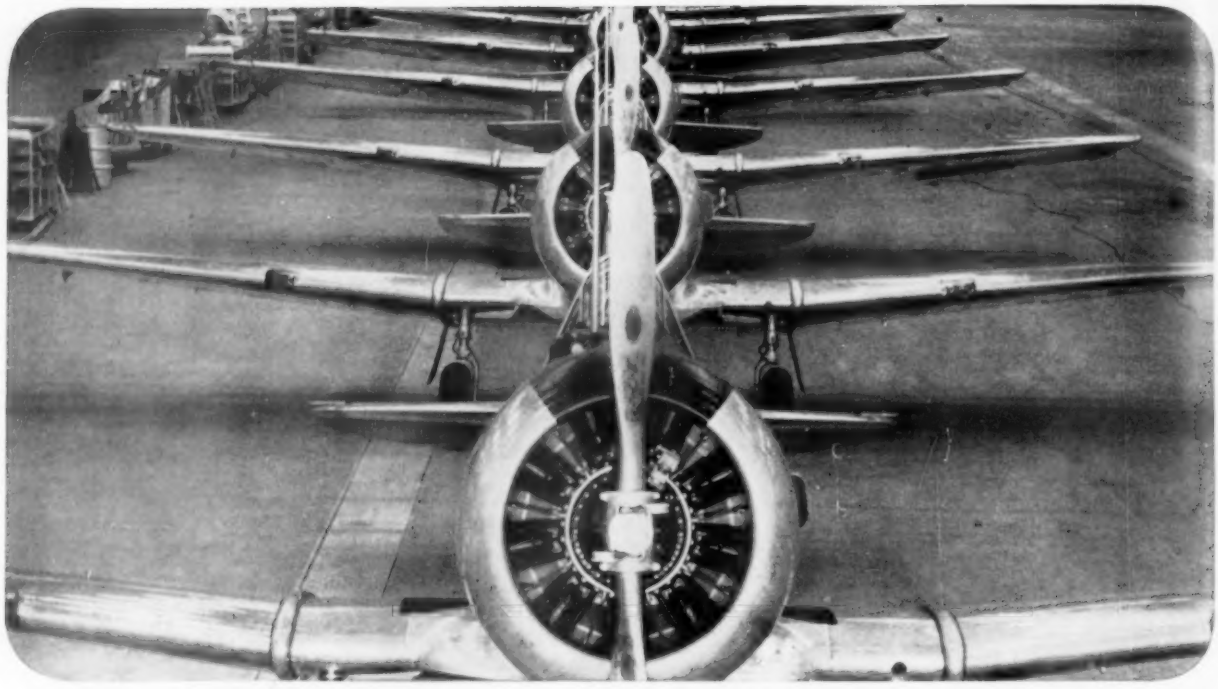
WE ARE all in this war together. The Navy is rightly called America's "First Line of Defense," but Axis attacks on other countries have proved all too clearly that cities may bear the brunt of battle too. There is a very real need for cooperation between the Navy and local officials on mutual problems.

In general, the greatest service municipal governments can render the Navy is to keep their departments running smoothly in the present emergency. Because the local government is closest to the individual citizen, it is most important that it continue to function efficiently. This will do more than tons of propaganda to insure constructive public morale, which is of incalcuable value to the Navy.

In those cities in which the Navy maintains shipyards, training stations, housing developments, and similar projects, more specific cooperation is needed. Steps must be taken to absorb the new activity into the normal life of the community. This often necessitates special help in extending utilities and roads, public health and housing, traffic control, and allied problems.

The Navy has a big job ahead. So that it may devote all its energies to accomplishing its task efficiently and speedily, the complete cooperation of every town and city is needed to relieve the Navy of purely local problems. To the municipal governments, then, we can only give the traditional Navy order: "CARRY ON."

For special statements from other agencies of the Federal Government, see pages 35, 36, 37, *and* 38.



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DEPENDS EXCLUSIVELY ON LAYNE WELLS AND PUMPS

Startling the Nation by going into production just one hundred and twenty days after construction began, the Dallas plant of North American Aviation, Inc., is now rolling out their famous Army AT-6A and Navy SNJ-3 Scout Trainer Planes. Factory and assembly space is completely air conditioned as an aid to accuracy, speed and efficiency in manufacturing.

As was the case with defense projects throughout the Nation, North American chose Layne Wells and Pumps for their water supply. Something over 1,400,000 gallons of water daily is available from their two Layne Units . . . and that capacity can go on day after day, month after month for years to come. In efficiency and dependability Layne Wells and Pumps have no parallel.

When the final chapter of America's greatest war is written, the part played by Layne Wells and Pumps will be a very absorbing story. Certainly in all the world, as hundreds of installations testify, there are no finer Well Water Systems. To meet the country's urgent demand for more and more production you may need more water. Act now! Communicate with Layne. Wire or address.

LAYNE & BOWLER, INC.
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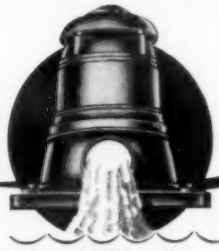

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WORLD'S LARGEST WATER DEVELOPERS

During January we hope you will remember to mention THE AMERICAN CITY.

Our Municipal Notebook

Friendly Transit Wins Friends in Memphis

THE 292,000 RESIDENTS OF THE CITY OF MEMPHIS, TENN., average 133 transit rides each in the year—*traffic density*. The city is square-shaped with few suburbs—*compactness*. The commercial district borders the Mississippi River, with the residential area back of it, ringed around by industrial plants—*organized travel*. The city distributes TVA energy—*cheap power*. For ten years, The Memphis Street Railway Co. has not only operated an electric-coach line but has maintained accurate cost and income records throughout the period—*shrewd management*. The factual evidence thus built up was put into a report presented by the company to the City Commission, requesting permission to adopt the electric coach as its main means of public transit—*capable management*. The records were:

	Per Mile	
	Operating Cost	Net Earnings
Street railway	$0.290	$0.033
Gasoline bus	.239	.020
Electric coach	.232	.069

The local transportation system of any city is not only of intimate importance to the residents, but to the visitor is perhaps the city's most obvious characteristic. It is a composite reflection of the transit company, the municipal government, the people, and the shape of the town. As the transit system is usually privately owned, the excellence of the service must be fitted within the income. To a degree, the quality of the vehicles and their frequency must be governed by the passenger density. The modifying factor is the energy and public spirit of the transit management, which keeps *accurate records* and uses them to make the little shifts and changes which attract the most riders at the lowest *net* operating expense.

The Memphis company operates street cars, trolley coaches and gasoline buses, striving to keep each type of vehicle within its proper economic field. The rail cars, seating 54 passengers, run on the long densely-populated routes where earnings of 35 to 40 cents per mile are possible. The gas buses, seating 33 passengers, furnish shuttle and feeder service. The 40- to 44-passenger trolley coaches, capable of earning 30 to 35 cents per mile, fit in between the cars and the buses. As used in Memphis, the trolley coach has an earning capacity of 3.9 per cent greater than the cars and 16.2 per cent greater than the buses, in seat-miles per hour. Actually, the 63 trolley coaches now in service in Memphis are earning much more than this proportional rate and account for nearly half the total earnings of the system. Why? Only because of greater per-mile seating capacity and low operating cost?

Careful reading of the report made by General Manager A. D. McWhorter of The Memphis Street Railway Co. indicates (1) popular approval of the trolley coaches and (2) an eager, friendly company desire to please. Says Mr. McWhorter:

> Considerable effort has been made by The Memphis Street Railway to check public reaction to electric coach service. The two Memphis newspapers have been followed closely. City officials, including police and fire authorities, have been questioned frequently. The Railway has "kept its ear to the ground" for comment from the public at large, and the overwhelming endorsement of electric-coach service has far exceeded the best expectations. Recently Null Adams, City Editor of the *Memphis Press-Scimitar*, was taken from his daily task of interviewing people and he, himself, was interviewed on his reactions to the electric coach.
>
> Mr. Adams wrote editorially:
>
> A lot of us are going to ride the new electric coaches. And if I had my way we would all ride them and leave our cars at home.
>
> This is the one way that traffic on the streets can be reduced, and never were such reductions needed more than now, as defense traffic mounts in volume. Good and responsive public transit is an element of good government and energetic production.

No Town Too Small for Snappy Accounts

IN RESPONSE TO AN INQUIRY OF KAPLAN, LA., for information about modern municipal accounting, we would not say off hand that any town is too small for mechanical accounting equipment. This belief is based on what other governmental units in the Kaplan class have done. For example, the Town of Rayne, La., with a population of about 2,300, finds it economical to have up-to-date mechanical accounting equipment. Gallatin County, Mont., population 2,500, uses late-type equipment, as do a number of smaller Texas counties which have installed mechanized methods.

Generally speaking, such means are justifiable even for very small units. With the Nation on a war-time footing now, we would say that time-saving equipment is more vital than ever to the conduct of sound operations—whether in a small town, a large public utility, or in a bomber plant.

R. F. SHAW,
Burroughs Adding Machine Co.,
Detroit, Mich.

Have We Got What It Takes?

NATIONAL DEFENSE, while losing none of its intrinsic importance, is now secondary to the idea of aggressive war-making. This means fight, and fight means war materials—planes, aerial torpedoes, bombs, guns, shells, explosives. This is the No. 1 need for our fighting men.

No. 2 is enthusiastic determination placed squarely behind adequate knowledge of events and information on how to proceed in emergencies.

Enthusiasm is a product of efficiency in the performance of an obviously productive task. Where morale is bolstered, enthusiasm is self-supporting and dynamic. The first requisite for the No. 2 need is to maintain civilian employment.* If this is not achieved, there will be less enthusiasm and morale will topple, for loss of occupation is a defeat in itself. Having something to lose helps to make the fighter.

The city governments must maintain their services, improve them, make sure they will not fail from lack of foresight, and keep in touch with the people through simple instructions and reports on the state and doings of the city. Each city government performing its full job efficiently may achieve that "atmosphere of affection" which Emil Davies, of the London County Council recently told the City Managers Conference, has knitted the municipal government and the people in England.†

* See page 49 of this issue—"To Reduce Wartime Migration by Using Idle Plant Capacity."

† See article by Alderman Davies, on pages 43-45 of this issue; also Walter J. Millard's article on "Keeping and Expanding Our Social and Democratic Values," on pages 57-58; and Phillips Bradley's discussion of "City Hall, the Citizen, and Defense," pages 50-51.

2 MORE U. S. ARMY TRAINING CENTERS

Served by Modern ELEVATED STORAGE

★ ★ ★ ★ ★

CAMP SHELBY, MISS., near Hattiesburg, is the training center for the 37th and 38th (Cyclone) Army Divisions. Occupying 5,125 acres in the DeSoto National Forest, this camp contains 15,000 buildings and tent frames, accommodating up to 68,000 officers and men. Water consumption varies between 110 and 125 gals. per man per day. Five elevated tanks with a combined capacity of 1,318,000 gallons provide efficient gravity pressure for the entire water supply system. These tanks are well distributed to serve individual areas to best advantage. (Shown above is one of the 300,000-gallon units.)

MAC DILL FIELD, near Tampa, Fla., is the location of the 500,000-gallon Horton elevated tank illustrated at the left, which provides gravity pressure to meet general water requirements for this Army Air Corps field. The ellipsoidal-bottom and roof, besides streamlining the structure, serves a functional purpose in reducing the "range in head." Because of this, pressure in the mains is kept more constant. (U. S. Army Air Corps Photo.)

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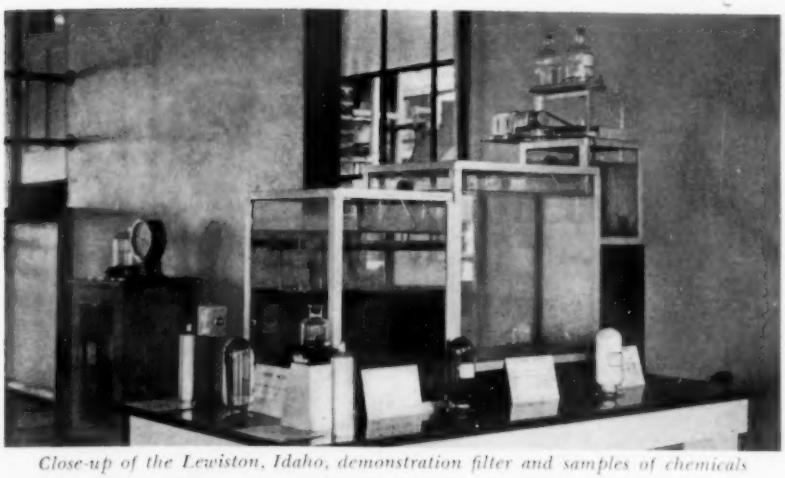
Do you mention THE AMERICAN CITY? Please do.

Water Supply and Metering



Close-up of the Lewiston, Idaho, demonstration filter and samples of chemicals

General view of the model water filter used to demonstrate the treatment process to visitors at Lewiston, Idaho

City Has Model Filter to Show Water Treatment

THE CITY OF LEWISTON, IDAHO, has built a model filter which is capable of demonstrating to visitors and students the complete purification process used at the city water-treatment plant. Plans were made some time ahead for this small unit, and many revisions made before the work of construction was actually started. The plans were then followed closely, producing the model shown in the illustration which performs exceptionally well.

The model is made mostly of glass, with the exception of the containers for the reserve water supply for operating it. The observer is able to see the chemicals going into the dirty raw water and to note all the changes which take place in the water, until it comes out a finished product. The filter effluent passes through a glass museum jar, showing the sparkling clear water as it leaves the filter. Museum jars containing samples of all the chemicals used in purification, except chlorine and ammonia, are displayed on the table with the model.

The mixing chamber has a retention period of about 30 minutes, with provision for the accurate feeding of two chemicals at the present time, and facilities for two more can be added easily. The mixing is mechanical, a small electric motor operating the mixer. The settling basin has a retention period of about three hours and has one small baffle. The filter has one square foot of sand surface, which is 6 inches deep, resting on 3 inches of carefully graded gravel supported on a perforated plate. The filtered water can be seen before it actually leaves the filter. After filtration, the water is chlorinated by a miniature chlorinator.

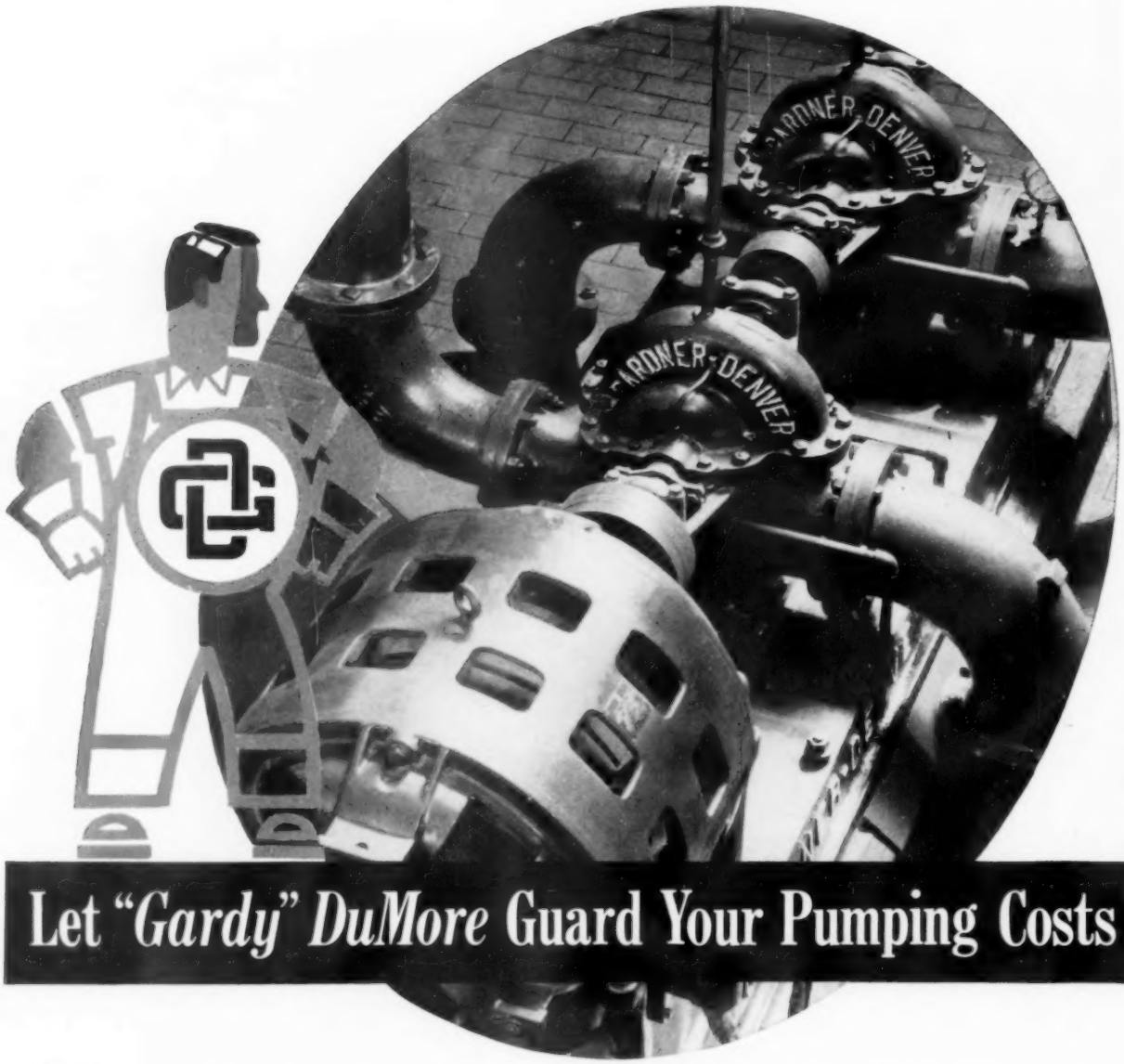
The little filter is provided with wash troughs, so that it can be backwashed like the standard units. The whole plant rests on a strong table, the lower portion of which supports two 15-gallon containers, one for the raw-water supply and one for the filtered water, and a small laboratory pump.

We are indebted to W. P. Hughes, City Engineer, Lewiston, Idaho, for this information and the illustration.

Water Meters Aid Checking Water Waste

THE WATER UTILITY OF THE CITY OF OGLESBY, ILL., has continued to increase the number of water meters in service from year to year. In its semi-annual report for the six months ending October 31, 1941, it states that its population is about 4,000 and that the meters in service at that time number 921 as compared with 905 the year before. The unaccounted-for gallonage for the combined April and July quarters of 1941 was 24.7 per cent, as compared to last year's 36.4 per cent. This real increase in efficiency is due solely to a conscientious effort to check for leaks at intervals and to maintain a closer watch on the accuracy of the meters in service. Edward Hand, City Clerk, reports that the city employee who divides his time between the City Clerk's office and the Water Department is responsible for the improvement.

The Water-Works Control Building at Canton, Ill., designed by Kinsey Engineering Co., Pekin, Ill. Chester A. Miller, Superintendent of Water Works



Let "*Gardy*" *DuMore* Guard Your Pumping Costs

"Gardy" DuMore is only a symbol—but he's a mighty important symbol for you to know. "Gardy" represents the *extra* aid you get in keeping costs low when Gardner-Denver Double-Suction Centrifugal Pumps are on the job . . . the special design features that enable these truly *modern* centrifugals to establish such remarkable performance records. For increased pumping efficiency and reduced cost per thousand gallons pumped, get full specifications: write Gardner-Denver Company, Quincy, Illinois.

GARDNER-DENVER DOUBLE-SUCTION HORIZONTALLY SPLIT CASE CENTRIFUGAL PUMPS:

1 A forward step in pump design — built for today's needs and conditions.

2 Every modern hydraulic and mechanical feature that increases efficiency and lowers power cost.

3 Casings, impellers and other vital castings of GarDurloy —the modern high strength cast iron developed by Gardner-Denver metallurgists.

Adaptable to any type of drive, these pumps are designed for heads up to 350 feet.

A TYPICAL USER REPORT: ". . We are more than pleased with the design and performance of our Gardner-Denver Pump. Pumping 1200 g.p.m. against a 120-foot total head, the unit more than meets your guaranteed efficiency of 88%."

GARDNER-DENVER PRODUCTS HELP SPEED DEFENSE

GARDNER-DENVER *Since 1859*

When you write for that catalog, kindly mention THE AMERICAN CITY.

Municipal Refuse Disposal

We Have Tried It Too!

A RECENT ISSUE of *The Street Cleaner* recites the endeavor of a resident of Islip, N. Y., to dispose of his garbage can, which had outlived its usefulness. Placing the container with other refuse to be removed by the collector, he considered the job done. This, however, was not the case, for next morning, there it was, the collectors having carefully refrained from throwing it on the load.

Next time he put the container in a basket with old papers, but to no avail. The papers were collected, but the garbage can was left behind. In his next attempt he carefully placed the can in a large cardboard box and tied it securely. The morrow revealed, however, that the collector had removed the string, taken the box, but placed the garbage can back on the curb.

That night our friend took his garbage can, stealthily proceeded to a heavily wooded section not far away, gingerly threw the can in a pile of brush, breathed a sigh of relief at a job well done.

Me too, pardner.—ENG'G. ED.

Court Upholds Fees for Refuse Collection

THE FLORIDA SUPREME COURT has recently rendered a decision in a case involving the city of Miami and a householder who refused to pay the annual $4 service charge and yet desired the collection of refuse from his property. While agreeing that the city should collect and dispose of refuse as a public health service, the Court said: "City fathers are possessed of no magic by which they can extract from the elements or some other intangible source the means to support new burdens as they arise. The means may be raised by direct or some other species of tax, but it must be extracted from the people and should be spread to require all who enjoy the service to aid in bearing the burden."

Miami found it necessary to levy service charges to finance the collection of garbage soon after the State Legislature passed a homestead tax amendment which removed much of the municipal tax base. The method of levying the fees in Miami is described in the March, 1940, issue of THE AMERICAN CITY, on page 50.

Other cities, according to the American Public Works Association, charging fees for removal and disposal of garbage from residential districts are Berkeley, Fresno, Oakland, Sacramento, and San Francisco, Calif.; Escanaba and Lansing, Mich.; Morgantown, W. Va.; and Oklahoma City, Okla. Most of the cities charge by the month on the basis of once-a-week collections. In Fresno, for example, residents pay the city 45 cents a month for the collection once a week of a 30-gallon garbage can. Twice-a-week collections cost 80 cents a month. The charge in Oklahoma City is $1.50 to $2.00 for three months, while in Morgantown it is $6 a year, or $2 for three months.

The procedure differs in Lansing, where the city rents garbage cans to residents for $1.50 each per year, but makes no direct charge for the collection of garbage and refuse. See THE AMERICAN CITY, December, 1939, pages 41-44, for a complete description of the fee system and collection and disposal methods in Lansing.

The American Public Works Association points out one disadvantage of the fee system; namely, that low-income groups may feel they are not able to afford the service and even may attempt to dispose of the garbage themselves, to the detriment of the public health, unless prohibited by city ordinance.

Tin Cans Earn Profit and Save Space on Dump

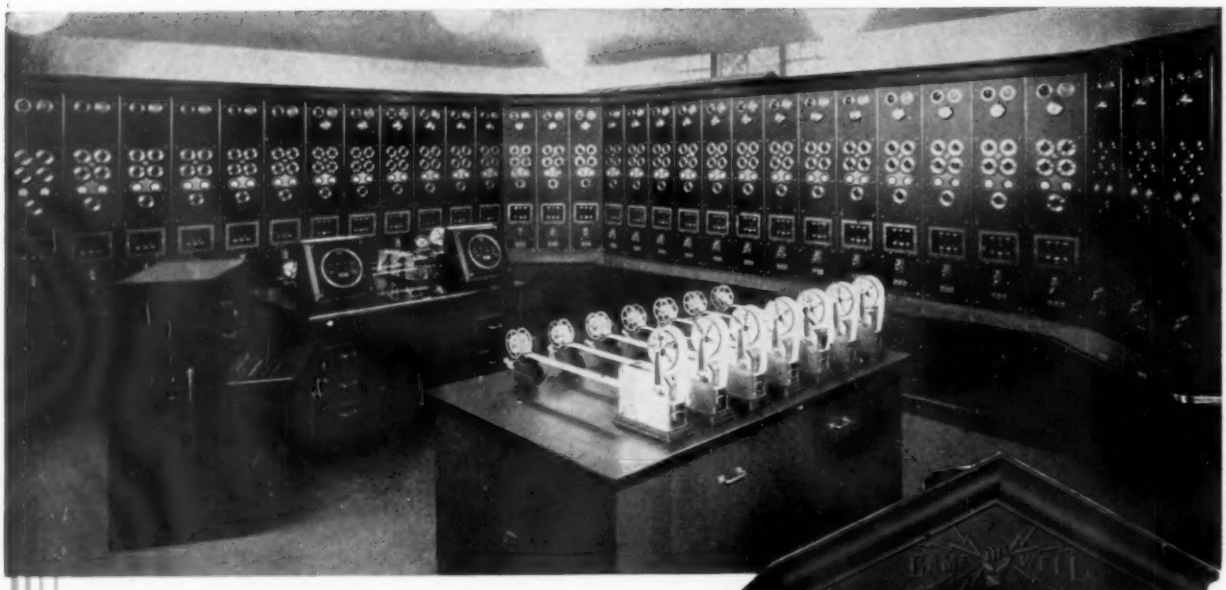
SALVAGING FROM 2½ TO 3 TONS OF TIN CANS DAILY is making a small profit for the Washington, D. C., Suburban Sanitary District, with headquarters at Hyattsville, Md., and at the same time is prolonging the usefulness of the dump used by the District. The Sanitary District, adjoining the national capital, sells the salvaged cans to a chemical company 30 miles away. It costs $2.00 a ton to haul the cans, and the net profit on the transaction, after fixed charges and overhead are deducted, is about $3.50 a ton. For the salvage job the District employs one man, who uses a baling machine to compress the cans into small bundles of 35 pounds each. The baler cost $3,000.

The salvage was begun several years ago, when a 70-ton incinerator was built for refuse collected from part of the 114-square-mile area served by the District. Almost immediately the volume of tin cans was found to be so great that the limited dumping space would soon become filled. The plan of baling and selling these tin cans was adopted to reduce the volume and prolong the life of the dump rather than to make a profit.

MILWAUKEE JOURNAL PHOTO

The new refuse-collection truck in service in Milwaukee, Wis. The entire equipment of this truck was specially designed to keep it within the 8-foot width required in Milwaukee. The unit weighs 22,000 pounds without load, and carries a load of 21 yards, or about 18,000 pounds. The truck was designed by Paul Johanning, Engineer of the Department of Public Works, and was built by The Heil Co. of Milwaukee and installed on a trailer built by Highway Trailer Co. of Edgerton, Wis. The hauling truck-tractor was furnished by FWD Auto Co., Clintonville, Wis.

Sacramento REVIEWS THE FIRE RECORD



A view of the Central Alarm Station — the heart of Sacramento's fire defenses. Shown is the operating equipment for 25 box circuits, 3 primary, 3 secondary alarm circuits and one tapper circuit, operator's pedestal equipped with two Peerless type manual transmitters and master recording sets, the individual circuit registers and the telephone switchboard all compactly grouped for efficient operation.

Installed in 1937, the new GAMEWELL FIRE ALARM SYSTEM

was intended (1) to provide adequate protection for a rapidly growing city, (2) for its influence on insurance rates and (3) to provide for future expansion at a reasonable expense. The system cost approximately $265,000.00. Reviewing the fire record for the three years preceding and three years following the installation Sacramento finds the following:

FIRE LOSSES—
3 YEARS PRECEDING: 3 YEARS FOLLOWING

1935	$195,872.12	1938	$205,606.15
1936	357,501.23	1939	100,558.48
1937	265,029.41	1940	253,510.53
Total	$818,402.76	Total	$559,675.16

The Three-Fold Fire Alarm Box

Sacramento now has 421 of these boxes and is one of the best protected cities in the country.

NET SAVINGS THREE YEAR PERIOD $258,727.60

And the Underwriters lowered the classification from Class 4 to Class 3 reducing insurance rates approximately $40,000.00 annually and the system is capable of accommodating 329 additional boxes without further cost except for the boxes and wire. The objectives which impelled the purchase of the system appear to have been more than achieved. Other fire defenses are entitled to credit, but THE CITY MANAGER ATTRIBUTES A LARGE PART OF THE SAVINGS TO THE NEW FIRE ALARM SYSTEM — AND HE SHOULD KNOW.

Prompt alarms mean low fire losses. The Gamewell Three-Fold Fire Alarm System with adequate box distribution provides the means.

GAMEWELL COMPANY NEWTON UPPER FALLS, MASS.

Public Safety

Police Motors of Los Angeles

HEREWITH IS A LIST OF MAKES AND TYPES OF THE AUTOMOTIVE EQUIPMENT in the Los Angeles Police Department. The sedan-type-cars recently purchased have been of various colors in medium-priced makes. For the uniformed officers' patrol duty, including traffic investigation, the Department is using a distinctive black and white coloring.

The Department owns 397 pieces of automotive equipment exclusive of motorcyles. We have just added 85 motorcycles and 10 three-wheeled Harley-Davidsons used by officers for checking parking on downtown city streets, and found very effective.

There are 252 pieces of equipment radio-equipped; 134 of them have facilities for both sending and receiving. The Traffic Division of the Los Angeles Police Department recently received 20 new Ford sedans painted the distinctive black and white, and equipped with high-speed Mercury motors. These cars are capable of speeds in excess of 100 miles an hour.

Los Angeles is blessed with many young automotive mechanics who have formed groups, or clubs, such as the Hundred Miles an Hour, Tornadoes, etc. While the Police Department does not wish to encourage races with these "hopped-up" car artists, their apprehension is made more certain with the new equipment.

I take this opportunity to give your readers a little color from our Seventh Annual Police Show, whose purpose is to raise funds to maintain various non-profit groups, i.e., Los Angeles Police Relief Association, Camp Valyermo for underprivileged children, police-sponsored Boy Scout Troops. It was held this year on August 15 in the Memorial Coliseum, which comfortably seats 100,000 persons.

The show opened with an immense patriotic tableau. Motorcycle officers of the Los Angeles Police Department, 100 strong, who are specially trained in formation riding, entered the great bowl and formed on the south wall. The Coliseum was blacked out, and the motorcycle lights turned on, throwing alternate stripes of red, white and blue across the bowl. While the stripes of Old Glory shone across the field and the audience was in complete darkness, little Gloria Jean, Universal Starlet, sang "God Bless America." This was followed by the nationally famous Los Angeles Civic Chorus of 500 voices singing the national anthem.

B. R. CALDWELL,
Deputy Chief of Police; Director of Traffic Operations, Los Angeles, Calif.

Automotive Equipment of the Los Angeles Police Department in August, 1941

AUBURNS	BUICKS
8 ambulances	11 sedans
CHEVROLETS	
61 sedans	1 tow truck
4 trucks	7 panel deliveries
CHRYSLER	DODGE
1 sedan	2 trucks
FORDS	
187 sedans	4 patrol wagons
2 coupés	40 trucks
4 buses	3 panel deliveries
GMC	
1 station wagon	3 patrol wagons
2 ambulances	1 truck
INTERNATIONAL	PACKARD
6 ambulances	1 sedan
LINCOLN ZEPHYRS	PLYMOUTH
2 sedans	44 sedans
WHITES	
1 tow truck	
MOTORCYCLES	
Harley-Davidson	Indians
110 2-wheels	5 2-wheels
10 3-wheels	

Los Angeles now owns more than 100 police motorcycles, mostly new

Playgrounds to Relieve Defense Trucking Hazards

THE DRIVE TO GET QUEENS BOROUGH, NEW YORK CITY, CHILDREN OFF THE STREETS and safe from traffic, made imperative by the increase in trucking for the national defense program, includes three playgrounds — in Ridgewood, Corona, and Far Rockaway. The recreation sites will be developed by WPA during the winter and completed in the spring.

The Ridgewood playground, largest of the developments, will occupy 3.5 acres, 2 of which will be paved for game areas, including courts for handball, basketball, volley-ball and paddle tennis; a wading pool and a sandpit, and such apparatus as seesaws, a pipe-frame exercise unit, and swings and slides for two age groups. One of the principal features will be a softball diamond with a hooded backstop and concrete stands for spectators. Drainage and lighting lines will be installed, fencing erected, and Oriental plane trees planted, as part of the project.

The playground in Corona will replace the neglected acre on the east side of the child health station. Old paving and dirt areas will give way to a completely paved area provided with catch-basins, drop inlets and drainage lines. There will be seesaws, kindergarten swings and slides, a drinking fountain and benches.

The new Far Rockaway playground will be a paved roller-skating area, with swings, slides, seesaws, a jungle gym, and benches.

Hoods on Meters Mean "No Parking"

WHEN MOTORISTS SEE A RED HOOD ON PARKING METERS in Madison, Wis., they no longer reach for a nickel, since it is a sign they cannot park at all. The red hood carrying the "No Parking" warning is put over the top of parking meters when areas must be kept free for traffic during weddings, unloading of merchandise and special traffic rushes, according to the American Municipal Association. The hoods, devised by the Police Department, cover the entire head of the meter and are tied at the lower end.

Pages 72-73 of this issue present important practical information on types and makes of sirens and whistles available for air-raids.

NO, IT WON'T BE FROZEN
IT'S A MATHEWS

Bury a Mathews under a snowdrift. Spray it with water in sub-zero weather. Expose it to the gripping thrust of frost-heaved ground. Properly installed, a Mathews Hydrant will open easily, deliver full pressure, and drain freely when closed. Nearly 70 years of refinement have given it operating threads sealed from all internal or external water, a drain valve that works with the main valve, and a loose protection case which absorbs the thrust of frost-heaved ground as well as allowing removal or repair without digging. Investigate Mathews for your community!

MATHEWS HYDRANTS

Made by R.D. WOOD Company

400 CHESTNUT STREET, PHILADELPHIA, PA.
ESTABLISHED IN 1803

Sewage and Sewer Financing

New Intercepting Sewer in Waukesha, Wis.

THE GROWTH OF WAUKESHA IN THE LAST 50 YEARS, and the condition of the 20-inch sanitary sewer constructed in 1890 to service the eastern half of the city, necessitated the construction of a new larger sewer. Precast reinforced concrete pipe is being used throughout, and owing to the ground conditions and the depth of the sewer, it is placed in a cradle of 1: 3: 6 concrete to insure an even distribution of pressure on the pipe. All tunnels are backfilled with 1:8 concrete. The manholes are of monolithic concrete construction. The depth of the excavation varies from 22 to 12 feet.

In 1939, about 960 feet of 36-inch sewer was constructed in sand and gravel, the water table being about 9 feet below the surface. In 1940, the construction amounted to 3,388 feet of 30-inch sewer. As construction proceeded, connections were made to the existing sanitary sewer system so that the new sewer system is carrying the load.

The sand and gravel conditions, found in 1939, continued, but the water table lowered so much that at one point the bottom of the 17-foot trench was dry. In one section a stratum of clay, about 200 feet long, was met, followed by increasing amounts of water. This was followed by running gravel which with a large amount of water, necessitated hiring expert tunnelers for this section of the job. This condition continued until rock was found at the bottom of the trench about 200 feet from the Soo Line right-of-way. The rock rose for a section so that the excavation went through 5 feet of stone and then it disappeared and gravel and water were met the rest of the distance.

The cost of the sewer to the city in 1940 was $39,470.52, of which over 10 per cent, for pump rentals, repairs and gasoline, was directly due to the large amount of water encountered.

Sewer Service Charges in Philadelphia, Pa.

AN ORDINANCE TO CHARGE for sewer service, or sewer rentals, based in part on the assessed valuation of real estate and in part on water rents, has been approved by the Philadelphia City Council's Committee on Finance and recommended by it for enactment. This proposal, which combines features of earlier ones, is intended as a substitute for the sewer-rent ordinance of August 1, 1940, which charged sewer rents based solely on the assessed valuations of real estate, and which was declared invalid by the Pennsylvania State Supreme Court in October, 1940 (340 Pa. 17).

Under the new proposal, the owner of each property served by the city's sewerage system would be required to pay an annual sewer rental composed of (1) an amount equal to 3 mills for each dollar of the assessed value of the property, and (2) an amount equal to 25 per cent of the annual water rent for the property. Only a half-year's rental would be payable in 1942: thereafter, a full year's rental would be payable each year. Water obtained from sources other than the city's plant is to be measured or estimated, and its water-rent value at city rates is to be included in computing the sewer rental. Water used by a commercial or industrial establishment but not discharged into the sewers, could, if measured, be deducted in computing the sewer rental. As an offset to the sewer rentals, it is planned to reduce the total real-estate tax levy of the city by approximately the aggregate amount of the sewer rentals to be received by the city.

After 1942, the sewer rental on a property assessed at $3,000, a fairly representative valuation for small homes, would be $9 plus 25 per cent of the water bill. The water bill for a metered property would be about $8, making the sewer rental $11; for an average unmetered property, the water bill would probably be $11 or more, so that the sewer rental would be not less than $11.75. If, as is planned, the real-estate tax is reduced 3.5 mills per dollar of valuation, or $10.50 for a $3,000 valuation, the sewer rental will exceed the tax reduction by 50 cents to $1.25 or more a year. For a property assessed at $10,000 with an $8 water bill, the sewer rental will be $30 plus $2, or a total of $32. The reduction in taxes would be $35, or $3 more than the sewer rental. However, the water bill of such a property is likely to be more than $8; but it must exceed $20 for the sewer rental to be larger than the reduction in taxes.

From *Citizens Business* published by the Bureau of Municipal Research, Philadelphia, Pa.

Sewage Effluent Sold by Baltimore to Mill

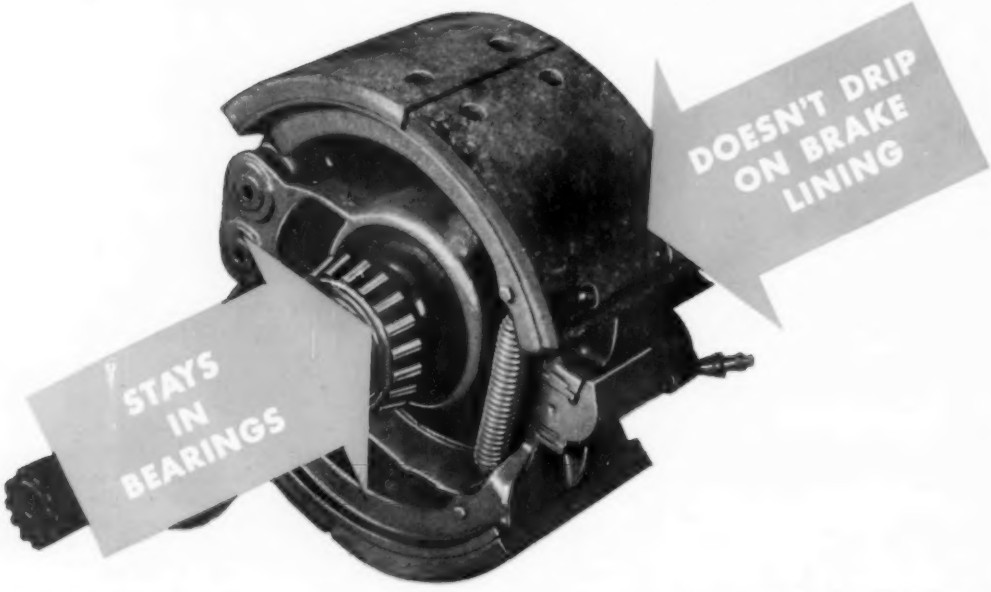
BECAUSE A NEARBY STEEL MILL NEEDED A LARGER INDUSTRIAL WATER SUPPLY for processing steel for expanded defense orders, Baltimore, Md., will receive $24,000 annually through the sale of the sewage effluent from its treatment plant. The effluent, now being discharged as a waste, is to be sold to the Bethlehem Steel Co. for use at its plant at Sparrows Point, four miles away. The steel plant will spend $2,000,000 on a pipe line and treatment plant for further purification of the effluent, which it will receive in quantities up to 40 million gallons a day.

Payments to the city for the effluent will be on a sliding scale, depending on the volume used. For less than 25,000,000 gallons a day, the rate will be $1,000 a month; for 25,000,000 to 37,500,000 gallons a day, $1,500 a month, and for a daily average of more than 37,500,000 gallons, $2,000.

A general view of the sewage-treatement plant at Lebanon, Pa., I. M. Glace & Associates, Harrisburg, Pa., consulting engineers. Treatment includes grit removal, two-stage digestion of sewage sludge plus gas collection and utilization. Sprinkling filters are used for the oxidation of the sewage

Safer Braking

THE YEAR 'ROUND



NO MATTER HOW MUCH the thermometer goes up . . . *or* down . . . you are assured of safer braking, when you use *Texaco Marfak—Heavy Duty* in your wheel bearings.

This newest *all-season* Marfak has rolled up millions of miles of proof that:

1. It lubricates effectively in lowest sub-zero cold, yet does not leak at the highest hub temperatures.
2. It needs no changing because of the change of season . . . assures more effective braking the year 'round.

The outstanding performance that has made Texaco preferred in the fields listed in the panel, has made it preferred also by heavy-duty truck operators everywhere.

These Texaco users enjoy many benefits that can also be yours. A Texaco Automotive Engineer will gladly cooperate . . . just phone the nearest of more than 2300 Texaco distribution points in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

THEY PREFER TEXACO

★ More locomotives and cars in the U. S. are lubricated with Texaco than with any other brand.

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

FOR YOUR ENJOYMENT • TWO GREAT RADIO PROGRAMS

FRED ALLEN every Wednesday night. See your local newspaper for time and station.

METROPOLITAN OPERA. Complete broadcasts of great operas every Saturday. See your local newspaper for time and station.

TEXACO

TEXACO Lubricants and Fuels

FOR THE TRUCKING INDUSTRY

RETURN METAL DRUMS PROMPTLY . . . thus helping to make present supply meet industry's needs and releasing metal for National Defense.

Keep Up-to-Date on New Equipment

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York, and we will see that the catalogs are sent to you without expense or obligation on your part. 1-42

786 787 788 789 790 791 792 793 794 795 796 797
798 799 800 801 802 803 804 805 806 807 808
809 810 811 812 813 814 815 816 817 818 819 820
821 822 823 824 825 826 827 828 829 830 831
832 833 834 835 836 837 838 839 840 841 842 843 844

Name ..... **Position** .....

Address .....

Publishing the Annual Report

786. "How to Plan and Publish Your Annual Report," a leaflet offered by A. B. Dick Co., gives practical suggestions for producing an annual report by stencil-duplication. It includes tips on format, paper, binding, illustrations, and lettering. For your free copy, address A. B. Dick Co., 720 W. Jackson Blvd., Chicago, Ill.

Asbestos-Cement Pipe Information

787. A free booklet entitled "Mains without Maintenance" is available from Dept. 1017 of Keasbey & Mattison Co., Ambler, Pa., and contains full information on K&M "Century" asbestos-cement pipe.

Accuracy and Long Life in Water Meters

788. Experienced metermen, whose jobs it is to keep municipal water meters in condition, know that there is a marked difference in meters and appreciate the advantages of long life, low-maintenance cost, and maintained accuracy claimed for Pittsburgh-National meters. For information about the Pittsburgh and the National lines of water meters, write to Pittsburgh Equitable Meter Co., whose main offices are in Pittsburgh, Pa.

Bulldozers and Gradebuilders

789. A 28-page bulletin recently issued by the Baker Mfg. Co., 503 Stanford Ave., Springfield, Ill., graphically explains the operations and uses of Baker Bulldozers and Gradebuilders with their direct hydraulic lift and down pressure. Complete specifications are given, and action photographs of Bakers at work on highways, flood control, defense work, bridge approach grading, and other projects are shown. Copies will be sent to those asking for Bulletin No. 834.

Water-Works Valves and Hydrants

790. M & H valves are made in commercial types in sizes from 2 to 30 inches inclusive. M & H fire hydrants, of the compression type, conforms to AWWA specifications and are approved by the Underwriters. A special traffic-model hydrant is designed to yield at the ground-line by means of breakable bolts and breakable coupling on the stem. For further details, address M & H Valve and Fittings Co., Anniston, Ala.

Valves for Water and Sewage Service

791. Chapman Automatic Cone valves are designed for many important applications in water-supply and sewage-treatment service, in such uses as stop-check, altitude and liquid-level control, and pressure regulating. This plug-type valve is built in sizes from 6-inch to 48-inch for manual, hydraulic, or electric operation, with various types of automatic control. You may obtain further information from The Chapman Valve Mfg. Co., Indian Orchard, Mass.

Public Relations Aid for Utilities

792. A recent 46-page publication of Remington Rand, Inc., sets forth the benefits and results secured by a large public-utility organization from the installation of a modern system of records and procedures designed by Remington Rand to promote the best possible public relations and service. This brochure, "Of The People, By The People, For The People," has already been mailed to many city officials. If you have not as yet received your free copy, write to Public Utility Riv., Remington Rand Inc., Buffalo, N. Y., and it will be mailed immediately.

Triple-Acting Non-Return Valve

793. Specifications for the Golden-Anderson triple-acting non-return valve will be sent promptly to those writing Golden-Anderson Valve Specialty Co., Fulton Bldg., Pittsburgh, Pa. This valve will automatically cut in a boiler whenever its pressure equals line-header pressure; will isolate a boiler whenever its pressure is lower than line-header pressure; and will prevent steam flow from the boiler in the event of a sudden drop of line-header pressure below the boiler pressure.

Raising Sunken Concrete Walks and Gutters

794. By the Koehring Mud-Jack method, sunken concrete walks, curb and gutter, driveways, streets, and highways can be raised, eliminating reconstruction costs. Write for the new Mud-Jack bulletin, illustrating applications and describing the Mud-Jack method, to Koehring Co., Milwaukee, Wis.

Long Service in Fire Hose

795. The position of the rubber lining in Bi-Lateral fire hose, when held in a flattened position between calls into service, makes for longer service of the hose. In addition, 25 per cent more of this hose can be loaded on the apparatus-bed. Bi-Lateral Fire Hose Co., 20 N. Wacker Drive, Chicago, Ill., will welcome your inquiries about this specially constructed, economical fire hose.

Durable, Color-Fast Twill for Uniforms

796. Reeves Army Twill, which meets exacting U. S. Government tests for better wear, longer life, and color-fastness, is an ideal material for uniforms of police, firemen, and other municipal employees. For matching shirts, Glengarrie Poplin is a durable, stylish fabric in a wide range of colors. Write for a colorful leaflet furnished by the manufacturers, Reeves Brothers, Inc., 54 Worth St., New York.

40 Years of Centrifugal Pump Design

797. The engineering department of De Laval Steam Turbine Co., Trenton, N. J., has concentrated continuously for 40 years upon the problems of centrifugal pump design and application, developing a modern line of high-quality pumps and a vast store of knowledge and expertness in solving pumping problems. Publication P-3223 will be sent to readers on request. State conditions of your centrifugal pump use, to obtain fuller information.

Corporation Stops, Goosenecks, Etc.

798. Water Works Catalog "H" will be sent to readers requesting it by Mueller Co., Decatur, Ill., manufacturer of corporation stops, goosenecks, and other water-works goods.

Modern Fire Engines

799. The Mack fire apparatus line includes triple and quadruple pumpers from 200- to 1,500-gallon capacity, hose wagons, ladder trucks, and squad cars—comprising 14 distinct and specialized models. Mack Mfg. Corp., Fire Engine Div., Long Island City, N. Y., is very glad to answer your inquiries about fire-fighting apparatus.

A Sewer Pipe for "Tough" Wear

800. Armco Asbestos-Bonded sewer pipe combines many features giving extra strength and durability, and guarding against breakage, leakage and wear, especially on the "tough" jobs which make extra demands on pipe strength and flexibility. Wite for complete information to Armco Drainage Products Assn., 5059 Curtis St., Middletown, Ohio.

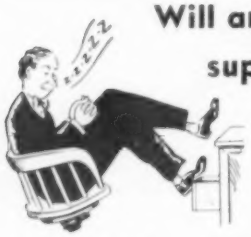
Steel Standards for Modern Lighting

801. Steel standards can play an important part in your street-lighting modernization plans, giving dependable and attractive service for the emergency and for years to come. Descriptive literature will be sent on request by The Union Metal Mfg. Co., Canton, Ohio.

Reinforced Concrete Is Frost-Resisting

802. The William S. Hewett System of reinforced concrete construction results in structures that will not crack, are frost-resisting, and require no upkeep. This system of reinforcing is applied to circular tanks for the storage of liquids, and to thin shell domes. Write for literature to The William S. Hewett System, 20 N. Wacker Drive, Chicago, Ill. Estimates will be furnished without obligation on request.

(Continued on page 18)

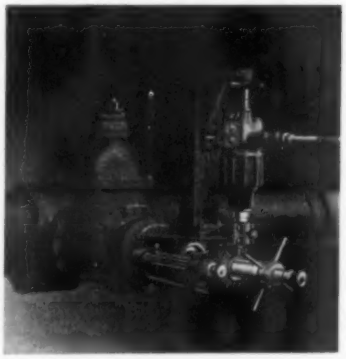


Will any water superintendents be caught NAPPING?

Even though we may believe that the chances of bombs falling on our cities are extremely remote, PREPAREDNESS for ALL contingencies is a "MUST." If bombs *should* fall, fires start, water mains burst, is *your* City equipped to maintain adequate water service — to repair the burst mains, or to make connection speedily to supplementary pipe lines?

A very good way to help insure complete water supply protection is to check up on your supply of dependable *SMITH Water Works Equipment*— valves, hydrants, valve inserting machines, tapping machines, tapping sleeves.

Do you have a Tapping Machine like this — for making branch connections to water mains under pressure? This SMITH Tapping Machine is made in several sizes for tapping connections from 2" to 42" into any size mains not smaller than the size of the connection desired. Both hand- and power-operated machines are available.



SMITH Tapping Sleeves for making pressure connections to AWWA standard mains, classes A, B and C, and for pressures up to 150 lbs. per square inch, are made in four types, here illustrated. At top: 1. Clamped Sleeve Joint; 2. Bolted Sleeve Joint. Bottom row: 3. Bolted Sleeve Joint with flanged end joint valve connection; 4. Hackensack Sleeve Joint with flanged end joint valve connection.

Below: SMITH Tapping Valves, for use with Types 1, 2, 3 and 4 Sleeves and for Classes A, B and C Mains: At left with flanged joint; and at right, with bayonet joint.

THE A. P. SMITH MFG. CO.
East Orange, N. J.

Branches
7 So. Dearborn St. Chicago, Ill.
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59 Oak Vale Ave. Berkeley, Calif.
315 N. Crescent St. Flandreau, S. D.

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(Continued from page 17)

New Street-Lighting Luminaire

803. The L-M Prismalite street-lighting luminaire, which uses a prismatic glass reflector to give "total reflection," is fully described in a new free booklet of the Line Material Co., Milwaukee, Wis.

Hand Brooms for Many Municipal Uses

804. For forty years the Harper Brush Works, Fairfield, Iowa, has had experience in making many types of hand sweeping brushes, specially constructed for use in city street sweeping, garages, warehouses, offices, schools, hospitals, court-houses, etc. Special Harper features include the non-breakable iron handle connection, metal bumper ends, and the fact that every fibre is wired in so that it won't come out. A small, handy booklet, which will be sent on request, contains detailed descriptions and illustrations of the various types of brushes, and retail price lists.

Asphalt Pavements' Effect on Subgrades

805. A new short bulletin of The Asphalt Institute, issued on October 9, 1941, is entitled "Asphalt Pavements' Beneficial Confining Effect" and contains a discussion of one of the Factors of Safety included in the design of asphalt surfaces shown in another recent booklet, "Bomber Flying Fields"; namely, that of surcharge effect due to the pavement's confining influence on subgrades or foundations, whereby their support-values become greatly increased. Those interested may receive the new booklet by writing to The Asphalt Institute, 801 Second Ave., New York, and requesting Construction Series No. 59-A.

Self-Proving Calculating Machines

806. Waste of time caused by calculating twice, in order to prove the correctness of the first calculation, is eliminated by Marchant internal audit calculating. Data on this novel and exclusive process will be sent without obligation to those writing to Marchant Calculating Machine Co., 1475 Powell St., Oakland, Calif.

Asphalt Paving

807. The Asphalt Sales Dept. of The Texas Co. states, as the interesting result of recent surveys, that among cities of over 100,000 population east of the Rockies, all but three have constructed Texaco asphalt pavements. This Department will be glad to furnish whatever information you need in regard to asphalt street paving, if you will write to 135 East 42nd St., New York.

Installing Underground Pipe by Boring

808. The Hydrauger system of underground pipe installation avoids trenching and backfilling, pavement-cutting, lawn destruction, or repaving. You are invited to write today for Bulletin No. 7A, full details and costs, to Hydrauger Corp., Ltd., 116 New Montgomery St., San Francisco, Calif.

Special Valve Construction

809. The principle of the double-disc, parallel seat valve was developed and perfected by The Ludlow Valve Mfg. Co., Inc., Troy, N. Y. and offers the advantages of positive closure, easy operation, self-cleaning seats, and easy replacement of parts. Ludlow valves, as well as Ludlow hydrants, are fully described in Catalog No. 201, a free copy of which will be sent promptly on request.

New Ford Trucks Announced

810. Into the 1942 trucks, Ford has built a larger measure of dependability, economy, and reliability than ever before. The most extensive line in Ford history, it is built to take care of more than 95 per cent of all hauling jobs, as announced by Ford Motor Co., Dearborn, Mich. For information concerning the right truck for your particular job, write direct to the company.

Pipe Tuberculation Areas

811. Interesting information has been made available by The Cast Iron Pipe Research Association, concerning those areas of the United States where tuberculating waters materially affect the carrying capacity of pipe, making it advisable to use lined cast-iron pipe instead of standard tar-dipped cast-iron pipe. By writing to Thomas F. Wolfe, Research Engineer, The Cast Iron Pipe Research Association, 1015 Peoples Gas Bldg., Chicago, Ill., you may obtain free of charge a map which shows the 76-per cent area where little or no tuberculation is to be expected, and the 24-per cent area where tuberculation should be guarded against.

Water Supply Chlorination

812. In cities and towns all over the country, Mathieson chlorine is rendering dependable service. Many water works also keep on hand a supply of Mathieson HTH, a free-flowing, mobile chlorine carrier containing over 70 per cent available chlorine, for use when water mains break or other emergencies arise. Information on these two sanitation products is available on request from The Mathieson Alkali Works, Inc., 60 E. 42nd St., New York.

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WHICH OF THESE CATALOGS WOULD YOU LIKE?

(Continued from page 18)

Sanitary Dump-Trucks

813. Heil sanitation equipment is in use by both large and small municipalities for quick and economical service. These units are quickly and easily loaded through hoppers and a conveyer system, and hydraulically dumped. You are invited to write or wire The Heil Co., Milwaukee, Wis., for information.

Elevated Tanks Play Part in Defense

814. Modern elevated water-storage facilities, manufactured by Chicago Bridge & Iron Co., are playing an important part in the maintenance of efficient water-supply systems at Army, Navy, and Marine Corps training camps, just as they do in municipal water service. By writing to this company at 2127 McCormick Bldg., Chicago, Ill., you can obtain full information in relation to your own water-storage needs.

Dependable Gasoline Motors

815. For all types of gasoline-powered appliances, tools, and machines, Briggs & Stratton gasoline motors claim economical, trouble-free performance under all conditions of service. Details will be gladly furnished by Briggs & Stratton Corp., Milwaukee, Wis.

Water-Main Cleaning Pays

816. Many cities that now find their water-supply resources overtaxed by the additional thousands of water users in defense industries and nearby army training camps are turning to the National Method of water-main cleaning as an economical means of improving water service. Your city, too, might find it profitable to check up on all the pipe lines to ascertain if any are clogged. The National Water Main Cleaning Co., 30 Church St., New York, will send information promptly on request.

Hydrants Specially-Built for Protection

817. Trucks and motor cars back into fire hydrants every day. When this happens to a Smith Protectop hydrant, the break occurs at only one place, and the only parts needing replacement are the frangible standpipe clamp and the frangible cast-iron stem section, so that full repairs may be effected in 15 minutes, according to The A. P. Smith Mfg. Co., East Orange, N. J., who will send complete information to those requesting it.

Cast-Iron Pipe with Mechanical Joint

818. Clow-National "C-N" mechanical joint pipe and fittings can be easily and quickly installed by average workmen with box wrench or ratchet wrench, it is stated by James B. Clow & Sons, 201-299 N. Talman Ave., Chicago, Ill., and its division, National Cast Iron Pipe Div., Birmingham, Ala. Write to either of these companies for Folder No. 3-15-41, giving complete detailed information about "C-N" mechanical joint pipe and fittings.

Winter Repair of Water Mains

819. You can prepare now for winter water-main emergencies by stocking up with Doublex Simplex split sleeves. When winter frosts come, you may need some of these improved sleeves for quick, economical, effective repair of broken mains. You may order now, or obtain full information, from American Cast Iron Pipe Co., Birmingham, Ala.

Sewer Rods and Accessories

820. Sure Grip sewer rods and accessories are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made of fir stock, these rods are furnished in two sizes for light- and heavy-duty service. Write for a catalog on a complete line of sewer-cleaning equipment to Expanding Sewer Machine Co., Nappanee, Ind.

Distribute Water Costs Fairly

821. Experience shows not only that water costs are distributed more fairly through the use of meters, but also that a great deal of water waste is eliminated in this way. The Neptune Meter Co., 50 West 50th St., New York, will be glad to send you information on this interesting phase of water-meter use.

Tar Melters for Prompt Delivery

822. Sperry portable-type tar melters, sturdily made of heavy steel plate with hinged cover and cast-iron doors, are available in several styles and sizes for prompt delivery. Write today for complete details and prices, to D. R. Sperry & Co., Dept. 1, Batavia, Ill.

Centrifugal Cast-Iron Pipe

823. Warren Foundry and Pipe Corp., 11 Broadway, New York, invites your inquiries on Warren spun centrifugal pipe in sizes from 2 to 84 inches for every need, and on special castings, bell and spigot, flange, flexible joint, culvert, milled and plain-end tubes, cylinders, flanged and bell spigot fittings, high-pressure fire service pipe, and short body specials. Write for catalogs to the address given above.

(Continued on page 20)

POWER SAWS
FEED GRINDERS
SAND SPREADERS
THESE ARE BUT A FEW OF THE WIDE RANGE OF APPLICATIONS OF BRIGGS & STRATTON MOTORS
Service Men—
Report That Briggs & Stratton Motors Deliver Unprecedented Performance Under All Conditions
Service men who really know what happens to power equipment "on the job" report that Briggs & Stratton motors are "tops" in motor performance. They have proven themselves unusually economical under all operating conditions — perform year after year with little or no maintenance expense— are enthusiastically endorsed by owners and users alike . . . This is another reason why Briggs & Stratton air-cooled motors are the choice of hundreds of manufacturers of machines, tools and appliances using gasoline power from 2/3 to 6 H.P.
BRIGGS & STRATTON CORP. Milwaukee, Wis., U.S.A.
4 CYCLE
BRIGGS & STRATTON
GASOLINE MOTORS

Catalogs Filled with Information

(Continued from page 19)

Dependable Parking Control with Meters

824. Detailed information will be immediately forwarded by Karpark Corp., 1028 Connecticut Ave., N.W., Washington, D. C., to city officials interested in learning about Karpark meters, manufactured and sold under the patents of Vehicular Parking, Ltd.

Mechanical Joints for Water Works Use

825. A recent leaflet reprint from the *Journal* of the American Water Works Association presents a discussion of mechanical joints for cast-iron water mains, taken from a paper by H. Y. Carson, "Symposium on Equipment Available for Emergency Repairs to Distribution Systems," presented at the Toronto Convention of the AWWA in June, 1941. The decision includes a listing of the prime elements to consider when dealing with modern jointing cast-iron pipe for both regular installations and emergencies. The reprint may be obtained free of charge from Carson-Cadillac Co., 1221 Pinson St., Birmingham, Ala.

Accurate, Durable Water Meters

826. Worthington-Gamon water meters are built to operate accurately year after year with minimum maintenance. For literature, write to Worthington-Gamon Meter Co., Harrison, N. J.

Pumps, Hydrants, Gate Valves

827. Bulletins are available from Manistee Iron Works Co., Manistee, Mich., on centrifugal pumps, fire hydrants, and AWWA gate valves. Manistee single-stage, double-suction pumps have capacities from 75 to 20,000 gpm; and Manistee multi-stage pumps are available in capacities from 50 to 3,500 gpm with heads up to 1,600 feet.

Equipment for Better Road Maintenance

828. Road maintenance equipment supplied by Mohawk Asphalt Heater Co., Frankfort, N. Y., includes asphalt heaters, tool and surface heaters, weed burners, and trailer tool boxes. Bulletins are available on these and other maintenance items.

"Mittens" Insulate Water Meters

829. Meter Mittens, manufactured by Ford Meter Box Co., Wabash, Ind., are designed to insulate water meters against heat loss and save many basement meters from freezing. A catalog will be sent to those writing the address above.

Safe Highways for Motorists

830. "Express Highways—How They Serve Millions of Motorists," a new booklet issued by the Portland Cement Assn., will be mailed free in the United States or Canada to those writing Dept. A12-4 of the Association, 33 West Grand Ave., Chicago, Ill.

Testing, Analysis, and Research Service

831. Literature received from Patzig Testing Laboratories, Ingersoll Ave. & 23rd St., Des Moines, Iowa, illustrates the many facilities for inspection, investigation, consultation, and research offered by these laboratories, which have rendered testing, analytical, and research services on a large number and variety of materials for all purposes. Leaflets, or more specific information relating to your municipal problems, can be obtained by writing to the address given above.

Reports on High-Capacity Filters

832. Bulletin 109, published in November, 1941, by Lakeside Engineering Corp., Chicago, Ill., is titled "Results Produced by Aero-Filters" and contains reports giving actual operating statistics for sewage-treatment plants with Aero-filter distribution in Lubbock, Texas; Temple, Texas; Gallatin, Tenn.; Paris, Ill.; Webster City, Iowa; and Mason, Mich. The bulletin will be sent promptly to those requesting it from the company.

Check-Up on Water Sterilization

833. A new folder of Wallace & Tiernan Co., Inc., P. O. Box 178, Belleville, N. J., points out the need for action to keep water supplies safe, through "safety check-ups" of physical layout, personnel and visitor policies, and means and methods of water sterilization. It includes descriptions and illustrations of W&T "Visible Vacuum" chlorinators for permanent water-treatment needs; chlorinators and hypochlorinators for the armed services; and the new trailer-type mobile chlorinator for emergency use. Wallace & Tiernan will be glad to send this, and other water-sterilization literature free on request.

Cheap Electricity

834. Caterpillar Tractor Co., Peoria, Ill., making diesel generating sets of 15- to 90-kw capacity, has just issued a 20-page booklet entitled "1¢ per kilowatt hour ELECTRICITY." It presents pictures and data on 43 installations including municipal plants at Baggs, Wyo.; Brooklyn, Iowa; L'Anse, Mich.; and the standby installation in the London, Ohio, water works.

Double-Suction Centrifugal Pumps

835. For full specifications on Gardner-Denver double-suction horizontally split case centrifugal pumps, write to Gardner-Denver Co., Quincy, Ill. These pumps are adaptable to any type of drive, and are designed for heads up to 350 feet. Casings, impellers, and other vital castings are of GarDurloy, a modern high-strength cast iron developed by Gardner-Denver.

Remove Winter Snows

836. A new two-color booklet on snow removal has just been released by the LaPlant-Choate Mfg. Co., Inc., Cedar Rapids, Iowa. The booklet describes in detail the various models of snow plows manufactured for use with Caterpillar diesel tractors, and is filled with illustrations showing the equipment at work in the field.

Clay-Sewer-Pipe Trench Loading Tables

837. A new publication of the Clay Sewer Pipe Association, Inc., is entitled "Trench Loading Tables," and may be obtained upon inquiry to the Association's office at 947 Oliver Bldg., Pittsburgh, Pa. The booklet contains three groups of tables, Group I showing trench loads on pipe of all sizes from 6-inch to 36-inch, inclusive, in soils of four different classifications, varying from sand and gravel to wet clay. Supporting strengths of the various sizes and classes of pipe under different conditions of installation are tabulated in Group II; and Group III includes a table showing the percentage of wheel loads transmitted to the pipe when installed at various depths.

New Bulletin on Waterproofing Materials

838. A new bulletin issued by the Primoid Products Corp. describes its various rubber-base waterproofing compounds, designed to stop leaks or seepage through brick, concrete, stucco, or other types of masonry. When applied to metal, these Primoid Products will prevent corrosion or rusting, since they are resistant to oils, alcohol, gasoline, brine, acids, and other chemicals. Copies of the bulletin will gladly be furnished to those addressing the manufacturer, Primoid Products Corp., 103 Park Ave., New York.

Road-Maintenance Equipment

839. A new folder of Littleford Bros., 500 East Pearl St., Cincinnati, Ohio, is designed to show all the different Littleford units for road-maintenance work. It includes descriptions and illustrations of Littleford pressure distributors, Trail-O-Rollers, utility spray tanks, emulsion sprayers, tar and asphalt kettles, tool heaters, tool boxes, surface heaters, oil burners, paving tools, supply tanks, and road brooms. Littleford Bros. will send this general folder on request, or will send more detailed information on any particular type of unit in which you are interested.

Chemical Feeder Shown Life-Size

840. Bulletin DEL of Proportioneers, Inc., 99 Codding St., Providence, R. I., displays on one side a life-size portrait of the new DeLuxe Chem-O-Feeder, while giving on the other side full descriptions and illustrations of this new all-purpose chemical feeder and other Proportioneers units. Illustrations include an installation diagram of a DeLuxe Mot-O-Driven Chem-O-Feeder for automatic and proportional chemical feeding into deep well pump discharge, and an installation diagram of an automatic and proportional Chlor-O-Feeder, mounted on and controlled by a standard water meter.

Industrial Pumps in Many Applications

841. Practical information concerning pump adaptation for a wide range of duties under varying conditions is the theme of the new industrial catalog just published by Pomona Pump Co. It contains a profusion of illustrated case histories of varied applications, and presents many practical drawings for laying in this type of pump. A free copy will be supplied to those writing Pomona Pump Co., 120 Broadway, New York City.

Air Raid Sirens

842. Special air-raid protection data, telling how to plan, install and operate air-raid warning sirens, will be sent to those writing on official stationery, or wiring, the Federal Electric Co., Inc., 8744 South State St., Chicago, Ill.

Water Meters Requiring Few Repairs

843. Hersey water meters do an accurate day-by-day, year-by-year job, with a low-rate of maintenance cost and repairs. Hersey Mfg. Co., South Boston, Mass., will be glad to furnish detailed information on request.

Benefits of Diesel Power

844. To find out, without cost or obligation, what F-M diesel power could do for your citizens, write to the largest United States manufacturer of a complete line of diesels, Fairbanks, Morse & Co., Dept. L10, 600 S. Michigan Ave., Chicago, Ill.

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Wartime Job of Federal Works Agency Needs Municipal Cooperation

By General Philip B. Fleming
Federal Works Administrator

NEVER in all history has there been a war in which the civilian population played so important a part as in the world-wide conflict which has now spread to our shores. Tens of thousands of civilians, many miles behind the battle lines, have been blasted to death by bombs from the air. Men, women, and children, bound on peaceful missions aboard the merchant ships of many nations, have been struck down by sudden death from the depths of the sea.

This is a new kind of warfare in which we are engaged. It is waged not only on the battle lines, but on the production lines. The difference between ultimate victory or untimely defeat may depend in large measure upon the strength of the home front. To bolster that strength is the obligation and privilege of every civil official of every unit of government, local as well as federal.

It is important, therefore, that all such officials should seek to redefine the purpose and functions of their respective offices in terms of the nation's all-out war effort. Since Japanese bombs fell in Pearl Harbor, I doubt if there is any thoughtful American who has not asked himself in what positive way he could contribute to bringing the war to a successful conclusion.

Decent Housing Essential

Military cantonments, naval bases, airfields, shipyards, and munitions plants are among the more tangible manifestations of the war effort. But decent housing and adequate community facilities for the men who forge, and the men who use, the weapons of war are foundation stones on which the superstructure of victory must be built. In providing such housing and facilities there is as great a need for unity of purpose and action as there is for national unity in the all-inclusive war effort.

The Federal Government, the states, the counties, and the cities are in this war together. No community can afford to be small in its approach to the problems of defense housing and defense public works. Technicalities must be swept aside. Group interests must be put away. The most important job for all of us now is to make the home base strong. The time is short.

Community Planning

Those of us in the Federal Government who share responsibility for carrying forward the defense housing and defense public works programs are ever mindful of the impact of our actions on local communities. Although more and more defense housing is more and more desperately needed, we have tried to keep very much in mind long-range community interests.

In setting up the defense housing program, the Congress took cognizance of the importance of community planning. But the Congress also recognized the need for speed, economy, and decency. It was for that reason that cost limits were set that would respect the taxpayer's desire for reasonable economy and at the same time provide homes that were comfortable and modern.

If the defense housing program is to make its maximum contribution to the war effort and to future community planning, it will need the sympathetic understanding and wholehearted cooperation of every community official. From now on we must build on even faster schedules than the tight ones on which we have been operating—and at a time when prices are rising and materials of all sorts are getting scarcer. But if we are bold enough in our planning, realistic enough about our needs, and cooperative enough in our constructive action, we shall succeed. We will build homes that will be a pledge to those who are giving the utmost of their skills and ability, and to those in the military services who face the hazards of actual combat, that their efforts and their loyalty are appreciated by their Government and by the American people.

Subordinating Group Interests

Municipal officials, chambers of commerce, local real estate boards, local housing authorities, city planning boards, public and private welfare agencies, and similar organizations can aid materially by resolving personal and group interests into the great overall national interest.

The kind of help that municipal officials can give us is best indicated by some of the defense housing difficulties we have encountered in the past. In some cases, Federal Works Agency representatives met opposition when they were sent to select sites for housing developments which the President had ordered built in certain localities. Special groups and real estate interests argued at length over sites proposed. Sometimes we were accused of unwarrantedly interfering with private business.

Now that the war has fused the American people into a national unity, I believe we will have smoother sailing than we have had in some places in the past.

Sites and Utilities

Municipal officials can aid materially in expediting the selection of sites for defense housing projects. City officials, housing authorities, and school boards can help determine the need for schools in or near housing projects. Mayors and city councils can cooperate by obtaining prompt revision of city charters whenever such revisions may be necessary to expedite defense housing construction.

Municipal and public utilities officials can render service of high value by taking steps to insure prompt installation of needed utilities at defense housing projects. Community cooperation is necessary for the opening of new streets and the closing temporarily of old streets during some stages of construction. City engineers can be helpful by making available to Federal Works Agency representatives their maps of water and sewer lines as well as other data bearing on site selection. And now, under wartime conditions, city fire and police departments must give all possible help in devising adequate safety measures to protect the lives and property of those who live in the defense project area. There must be no sidestepping of responsibility on the pretext of "no jurisdiction" when human lives are in danger.

Municipal officials can give much of the same kind of help in connection with the defense public works program which is providing community facilities necessary for the health, safety, and welfare of industrial war workers and the men in the nation's armed services. Here again a sympathetic understanding of the program is indispensable. Municipal officials must recognize that this is a defense and wartime program.

Municipalities Must Share the Burden

The Federal Government is anxious to do all it can to aid communities whose populations have mushroomed as a result of the war effort and who find that their school, hospital, and recreational facilities and sewage and water systems are inadequate to meet the new demands put upon them. But the funds at the disposal of the Federal Works Administrator are limited. He is duty-bound not only to give first aid where it is most urgently needed, but to aid as many communities as possible with the funds at his disposal.

City officials should not look to the Federal Government to make up deficiencies in community facilities which were inadequate before the national emergency. The Federal Government should not be expected to provide more facilities than were made necessary by the increase of population due to the defense and war efforts. And at a time when the Federal Government has shouldered an unprecedented financial burden, municipalities should make every effort to help pay, to the limit of their ability, the cost of the new facilities.

I am sure we are going to get from municipal officials the kind of assistance I have outlined. I believe we will get a degree of cooperation that will make for greater accomplishment and the development of mental attitudes and unselfish sacrifies that will afford new evidence that our democracy works.

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Federal Power Commission Asks Local Aid

By LELAND OLDS
Chairman

THE Federal Power Commission, in close cooperation with the Federal Bureau of Investigation and the Army and Navy Intelligence Services, has developed protective measures covering the country's electric generating plants and other power facilities with a view to minimizing damage and consequent interruption to power supply from enemy attack or sabotage. These protective measures have been worked out in collaboration with the officials of publicly and privately owned electric utilities throughout the nation.

The Commission is participating in periodic inspections to see that the measures are carried out by the utility systems. Steps have also been taken to assure the greatest possible mobilization of power supply.

Under the President's Executive Order (No. 8972) of December 12, 1941, military guards and patrols to protect power facilities from injury or destruction may be established when deemed necessary by the Secretary of War or the Secretary of the Navy. Obviously, the establishment of military guards during this period of emergency should be only supplementary to the protection provided by local governments. The burden of providing qualified personnel to protect power supply rests upon municipal, county, and state officials and their wholehearted and constant cooperation is earnestly solicited. Power Supply is not only vital to defense production but is an essential part of the pattern of life in our communities. Interruption by sabotage or attack would bring about serious hardships to civilian life, and these must be prevented by the civil authorities.

The Commission also solicits the aid of civil officials in promoting public understanding in communities in which power rationing may become necessary during the war. Rationing plans, if necessary, will be worked out in collaboration with local utility officials and with regard to the welfare of civilians. While no plans are afoot to institute power rationing to any considerable degree in any areas in the immediate future, the shortage of generating facilities and the heavy defense power requirements make necessary immediate planning toward economizing on power use in every community to meet local problems as they arise.

The Federal Power Commission stands ready to cooperate with city, county, and state officials in meeting power problems in the war effort which it is not possible to solve locally and, in assuring power supply for vital defense industries throughout the country, the Commission will continue to give the utmost consideration to essential civilian needs.

Red Cross Cooperation with Municipal Officials

By G. Stewart Brown
National Director, Public Information Service
American Red Cross

IN RECOGNITION of the fact that the health and safety of our civilian population are of vital importance to our national war effort, agencies interested in these fields have, for months, been perfecting plans and laying the foundations upon which to build. Included among these agencies is the American Red Cross.

Because of the gigantic nature of the activities involved in civilian defense, it was realized at the very outset that the cooperation of all would be needed to assure success, to eliminate costly duplication, and to provide most effective and smooth functioning of defense agencies in case of emergency.

As most municipal officials are aware, the Red Cross by reason of long experience and organization is the recognized disaster relief agency throughout the nation. The exact status of the national Red Cross and its local chapters in this connection was most recently defined in a joint statement issued last September by the head of the Office of Civilian Defense and the Chairman of the American Red Cross.

Disaster Relief Service

Under this agreement the American Red Cross is made responsible "for relief of suffering caused by disaster both in peacetime and in the national defense emergency, by providing food, clothing, shelter, medical and nursing care, and other basic necessities. Therefore, Red Cross Disaster Relief Service, nationally and in local chapters, will serve in emergency care and rehabilitation of individuals and families suffering from disaster caused by belligerent action during the national defense emergency in cooperation with governmental agencies—national, state, and local. In rescue work and emergency medical service caused by belligerent action in which the Office of Civilian Defense assumes leadership and responsibility, the Red Cross will make its services available as needed."

This means that, should belligerent action create the need, the Red Cross will be responsible for provision of food, clothing and shelter, medical and nursing care and, when necessary, rehabilitation of the victims after passing of the immediate emergency.

Many years of this kind of activity have given the Red Cross a well-organized and efficient relief set-up. Experienced members of the staff are prepared to go to work at a moment's notice wherever disaster may strike. In communities throughout the country the disaster preparedness committees of local Red Cross chapters, cooperating with local defense councils and municipal authorities, are revamping their plans, strengthening their organized volunteer services such as Canteen Corps and Motor Corps, resurveying local facilities and, in general, making all necessary preparations for possible large-scale operations in the future.

There is no way of telling where disaster may strike. But one thing that everyone is sure of is that if plans of action are drawn up in advance by the cooperative efforts of all agencies, the seriousness of the disaster may be materially lessened. The Red Cross, in making its plans for the care of possible refugees and evacuees, is relying upon the wholehearted cooperation of all municipal agencies.

Housing and transportation may be required overnight, or even upon shorter notice. Special facilities for mass feeding and first-aid care may be needed. Manpower may also be required to help in handling possible evacuations and the other many problems which may come up.

CCC Camps as Red Cross Evacuee Centers

Illustrative of what is possible by advance planning and cooperation is the recent agreement between the Red Cross and the Civilian Conservation Corps, under which CCC camps, their equipment, and personnel throughout the nation have been designated for emergency use in the event of mass evacuation necessitated by enemy action in any part of the country.

This arrangement calls for immediate training of key CCC personnel in Red Cross disaster-fighting techniques and designation of CCC camps as Red Cross evacuee centers. All members of the CCC so trained, will carry out their assignments as components of the Red Cross disaster relief setup. In time of need, necessary equipment belonging to the CCC would be made available, according to the agreement.

Red Cross Chairman Norman H. Davis, announcing the agreement, said it follows closely arrangements between the Red Cross and the Army, Navy, and other Federal agencies which make available equipment, supplies, and personnel to the Red Cross in time of emergency.

All rolling equipment and trained personnel of the CCC will be available to the Red Cross for rescue of evacuees and their transportation, with their personal belongings, to concentration points; for transportation of medical per-

sonnel and medical supplies; for distribution of relief rations; for transfer of cots, blankets, kitchen, and feeding equipment; for service in preparation of food, either in CCC camps or on other premises operated as mass shelters; for emergency and housing facilities on CCC premises; and for supplying storage space for Red Cross or other supplies and equipment, the agreement states.

Municipal authorities in many areas have been working with the Red Cross for a number of years. Personnel of police, fire, and other departments have received instruction in first aid from local Red Cross chapters. Officials have cooperated in drawing up disaster preparedness plans. In cases of actual disaster, municipal buildings have been placed at the disposal of the Red Cross and the various services have cooperated to the fullest extent. The Red Cross hopes that throughout the present emergency and for years thereafter this spirit of cooperation will remain unbroken.

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The American City During World War I

AN examination of the files of this magazine for the years 1917-18 shows both similarities and differences in the wartime problems then confronting municipal governments as compared with those of the present war.

In its first issue after the entry of the United States into World War I—the issue of May 1917—THE AMERICAN CITY called attention on its front cover to the great importance of the service which the municipal officials and the commercial and civic organizations throughout the United States might render in that international crisis. As "war-time measures of economic preparedness and social welfare," the following activities were listed:

1. Vacant lot cultivation
2. Care of families of soldiers and sailors
3. Coordinating and financing of local charities
4. Plans for Independence Day receptions to encourage naturalization of aliens
5. Promotion of increased production in agricultural areas adjacent to your city
6. Improvements in market methods
7. Training school children in gardening
8. Vocational training in night schools
9. Teaching English to adult foreigners
10. Physical preparedness through improved housing conditions
11. Baby Week campaigns and other child welfare work
12. Increased attention to public health and sanitation
13. Safeguarding moral conditions in camps
14. Enlistment of emergency forces by fire departments
15. Increased attention to road building and maintenance
16. Enlistment of emergency forces by police departments

It seems surprising today to recall that, among wartime measures with which local governments were then concerned gardening was of major significance. THE AMERICAN CITY emphasized the importance of this 1917 problem in a 12-page illustrated article headed: "Mobilizing Unused Land and Forces to Meet an Unprecedented Crisis—An outline of some of the methods that are being used in applying the vacant lot and home gardening idea towards solving the problem presented by the present food shortage." So different now are conditions as to the food supply, that there has as yet been no effort by the Department of Agriculture to enlist the cities in supplementing the agricultural output of the rural areas, although preliminary conferences looking to that future possibility have already been held.

In housing, the situation is quite different. In its issue of May 1917, THE AMERICAN CITY said editorially:

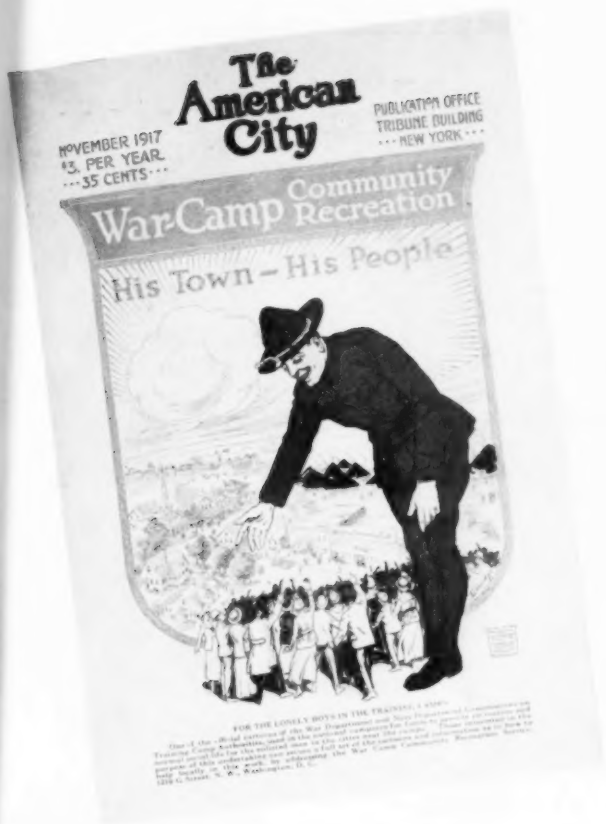
"In these days of war it would be a serious mistake to permit any weakening of the restrictive legislation in the form of housing laws and building codes by which evils of congestion and insanitary housing have been greatly mitigated in many states and cities. But preventive measures alone will not bring to employers that maximum of efficiency which the times demand, and to promote which the adequate housing of their workingmen is essential. . . . In many cities there is recognition of an acute need for more or better homes for workingmen — and much uncertainty as to what to do about it."

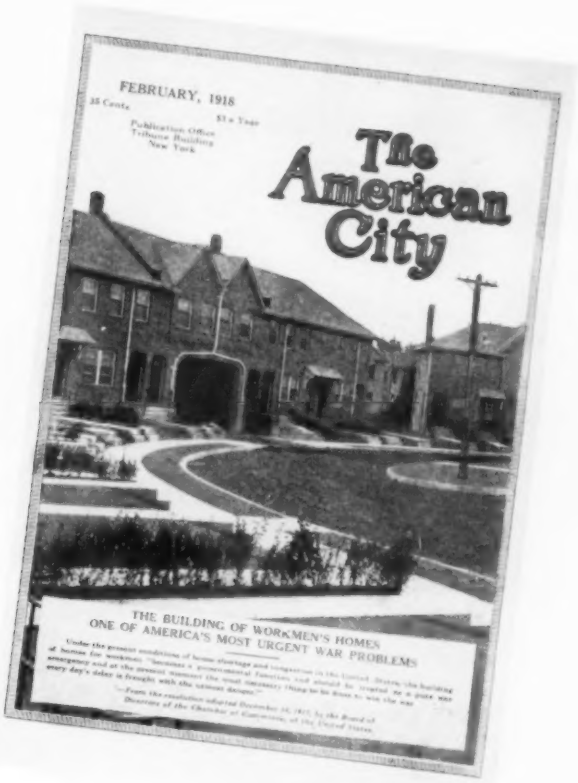
No suggestion was then made that this was a task for the Federal Government, but it was soon recognized as such by the War and Navy Departments; and in February, 1918, this magazine published an article by Frederick L. Ackerman on "War-Time Housing —England's Most Urgent Civic Lesson for America," pointing out the relation of housing, town planning, and adequate environment to efficiency and maximum production of munitions, and offering recommendations for governmental action.

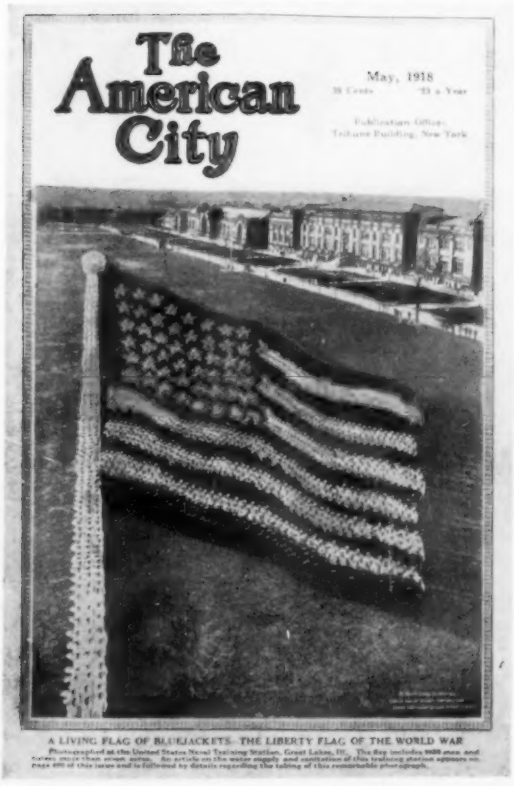
Among many articles published during those World War months of 1917-18 on subjects most of which have again become urgent may be mentioned especially:

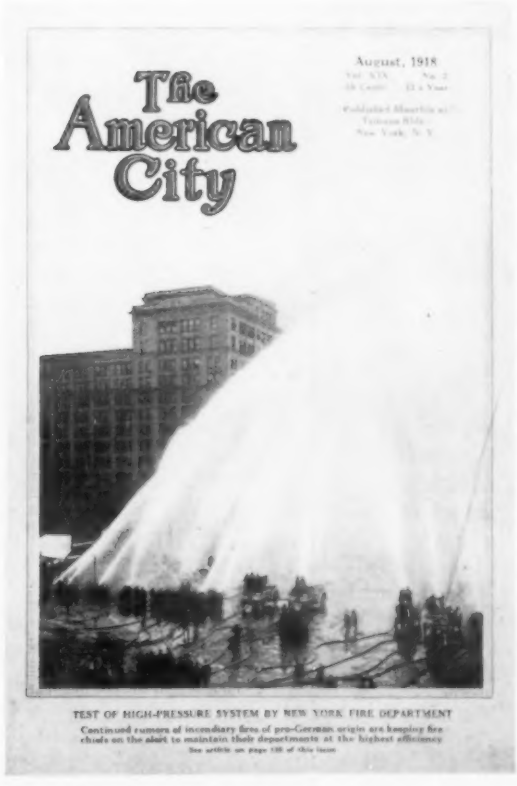
"Road Building and Maintenance as a War-Time Measure"—May 1917
"Emergency Measures Adopted by the New York Fire Department"—May 1917
"City Planning in War Time"—June 1917
"School Buildings as Coordinating Places for the Civil Energies of the War"—June 1917
"Newton D. Baker, Secretary of War, Speaks on War Camp Community Recreation Service"—November 1917.
"An Argument of War-Time Continuation of Preliminary Work on Public Improvement"—January 1918
"Save Coal by Reducing Water Consumption"—January 1918
"A Campaign to Save 100,000 Babies as a War Measure"—March 1918
"War-Time Needs of Water-Works—Rising Costs a Serious Problem—Extension of Service and Increased Rates Essential in Many Cities"—May 1918
"How Local Organizations Can Help the Ordnance Department — Definite National Needs Which Chambers of Commerce Can Meet"—May 1918
"The 'Take a Roomer' Campaign"—May 1918
"Zoning as a War-Time Measure"—July 1918
"Forethought in Establishing Municipal Coal Yards"—July 1918
"Keep the Factories Fit to Fight—An Arraignment of American Carelessness Regarding Fire"—August 1918

Perhaps the most curious contrast between conditions in World War I and II shown in these issues of THE AMERICAN CITY is the publication in June, 1917, of a Washington night view entitled "Lighting Up the Nation's Capitol"—the reverse of present day blackouts.









Front covers of four issues of THE AMERICAN CITY *during World War I*

How a Well-Organized City Is Meeting the War Emergency

By CARL F. ZEIDLER
Mayor of the City of Milwaukee
Chairman of the Milwaukee County Defense Council

THE war has come to us. . . . Our country, along with the British Empire and other free nations of this troubled world, is now in a state of war against a threat to our ideas of freedom and our way of life.

In the bewildering kaleidoscope of the moment, I felt the responsibility thrust upon my office and, consequently, on December 10, 1941, I took immediate steps to put Milwaukee on a war-time basis and to mobilize and coordinate all its defense activities.

For many months now, the municipal government of the city of Milwaukee has been making extensive preparations in national defense, recognizing as far back as May, 1940, that in the event of any sudden and unexpected emergency the work of public welfare agencies must be unified. As a matter of fact, I hurried to Washington, D. C., on May 20, 1940, to pledge Milwaukee's full and undivided support to the administration's national defense program.

After organizing the Civic Coordinating Council for city-wide civilian defense work, we formed on May 11, 1941, the Milwaukee County Defense Council, which now includes the executives of all local governments in Milwaukee County. And on June 14, 1941, following an extensive survey made of the industrial facilities available in the Milwaukee area, we formed the Defense Industries Council of Milwaukee County, which had as its cardinal objective the pooling of productive resources of Milwaukee industries.

The work of the Defense Industries Council of Milwaukee was eventually absorbed by the branch office of the Office of Production Management, which was established in Milwaukee through the efforts of the Council.

Also, through the efforts of the Defense Industries Council there was established in Milwaukee a Priorities Division, for the purpose of aiding businessmen and manufacturers in problems resulting from applications of the priorities system.

Public and Voluntary Agencies Coordinated

These are some of the spokes of the huge defense-activities wheel revolving around Milwaukee County in the current national emergency. Every one of these units, working together with the regularly constituted authorities, have considered and adopted measures for legalizing voluntary defense agencies, exchanging fire-department equipment in the event of a disaster, taking precautionary measures against sabotage, cooperating with the American Red Cross, and surveying all the resources of the city and county with a view to their most intelligent utilization should an emergency arise locally.

Nation-wide recognition of Milwaukee's defense preparations was given by Mayor Fiorello H. La Guardia of New York who, in his capacity as National Director of Civilian Defense, issued a statement on May 25, 1941, in which he said:

"From the standpoint of collaboration in the National Defense program, Milwaukee has set the pace for other American communities. The fact is, as has been the case in so many other instances, Milwaukee has demonstrated once again its alertness to meet any emergency."

It would be folly for me to attempt to describe in detail the preparations made by the various departments of the municipal government. But I shall endeavor to present here a bird's-eye view of what has been done, and what is expected to be done in civilian defense.

Police Work in the War Emergency

Upon my recommendation, Captain Hubert Dax, director of the Police Training school, was delegated to the Civilian Defense school at Edgewood Arsenal, Maryland, from October 5 to 18, 1941, where he obtained a deep-rooted knowledge of police work in war emergency.

For many months now, police officers of Milwaukee have been training at the Police Training school in the field of civilian defense measures, which include such subjects as:

- Methods of fighting fires caused by incendiaries of all types
- War gas protection and decontamination
- Protection against explosive bombs
- Training and instruction methods

The Federal Bureau of Investigation conducted a course for police chiefs, sheriffs, and other police administrative officers. The course was conducted in the Milwaukee Police Training School room and some of the subjects covered included:

- Wartime and emergency duties
- Convoy work
- Blackout enforcement
- Gas decontamination
- Evacuation problems
- Air-Raid precaution work
- Precaution against sabotage and similar phases of preparedness akin to the present crisis

From December 1 to 6, 1941, the Federal Bureau of Investigation conducted a training course for emergency police work which was attended by supervisory officers, who now in turn instruct their subordinates on twenty various items of defense preparations, including in-

ternal security duties and police communications.

Aside from that, the Police Department has organized a sabotage squad, has purchased a special bomb car and has entered virtually every field of defense activities essential for the protection and safety of the civilian population.

Fire Department Preparations

Like the Police Department, the Fire Department too has engaged itself in extensive emergency preparations.

As far back as September, 1940, the Fire Department began to instruct both officers and men of the department in the handling of fires resulting from explosion or ignition of incendiary materials used in defense industries, and the handling and disposal of sabotage bombs.

On March 5, 1941, the Milwaukee County Association of Fire Chiefs was organized for the purpose of coordinating the fire-fighting facilities within the County of Milwaukee. Membership was restricted to those cities, towns, and villages which had a fire department.

The governing bodies of each governmental subdivision within Milwaukee County have authorized their respective fire departments to respond to an alarm anywhere within the jurisdictional limits of Milwaukee County when called upon for assistance by a chief of another fire department.

In branching out its work in an effort to safeguard and protect national defense industry, the organization opened its doors for associate membership to plant safety engineers or maintenance men.

After a preliminary effort was made to organize the fire-fighting equipment of the County of Milwaukee, a successful attempt was made to coordinate and make uniform the procedure in fire fighting, by detailing one or more men from each fire department to attend classes conducted at the Bureau of Instruction and Training of the Milwaukee Fire Department. Here Assistant Chief Edward E. Wischer, who is director of the bureau and who attended special courses offered in Civilian and Industrial Plant Protection at the New York Fire College, New York City, and at the Edgewood Arsenal, Maryland, utilized his knowledge of fighting modern warfare by instructing fire-fighters of the respective communities in the county and equipping them with the necessary knowledge which enabled them to become instructors in their own departments. Thus, by this process, the fire departments of all communities in Milwaukee County have prepared themselves for the eventualities that now may arise.

In line with industrial protection, the Milwaukee County Association of Fire Chiefs offered its services in the field of industrial plant protection by making rigid inspections other than those already provided for by law, and by the organization of industrial plant fire brigades.

The brigades are being trained in the methods of first aid, fire fighting, and in the maintenance of industrial fire-fighting equipment.

Along with fire and police protection there have been organized auxiliaries of both the Fire and Police Departments in the City of Milwaukee and its suburbs.

The auxiliaries are composed of volunteers who are trained for specific duties. While the duties of the auxiliary firemen are similar to those of the regular fire-fighting forces, the duties of the auxiliary policemen include:

1. Enforcement of emergency restrictions on lighting and prohibitions on trespassing
2. Guarding of docks, bridges, and factories to prevent sabotage
3. Traffic duty to help keep the essential vehicles in motion
4. Prevention of looting of partially demolished shops and homes
5. Assistance to air-raid protection services, before, during, and after air raids.

Auxiliary police, upon completion of training courses, will be properly armed and identified by police shields and arm-bands, and members of the Fire Department auxiliary will be identified by insignia showing the Maltese cross.

Health Department Activities

The Health Department of the City of Milwaukee is now also well prepared for any wartime emergency.

Incidentally, all work of the Health Department as it is routinely performed is related to defense of the health of the people in our community, and since the maintenance of personal health of workers is essential in this all-out defense effort, all the activities of the Health Department are, in a broad sense, defense efforts.

Special activities which have been undertaken by the Health Department, and having direct relationship to our civilian defense program, are: dissemination of knowledge pertinent to the safeguarding and protection of health; nutrition; expansion of instruction in home nursing in the High Schools and for interested Women's groups; sponsorship of nurses' aid training; availability of emergency water supplies for public consumption; plumbing cross-connection surveys; safety of industrial workers; maintenance of housing standards; and epidemic control.

Hospital Service

The County of Milwaukee has available for emergency treatment, two emergency hospitals. One is the County Emergency hospital, operated by Milwaukee County, and the other, the Johnston Emergency hospital, is operated by the City of Milwaukee. In addition, all private hospitals are in a position to take care of a reasonable number of emergency cases if the need arises.

It so happens that hospitals are rather well distributed in the community and well prepared for the anticipated emergency. If, however, actual bombardment by air or otherwise should occur, a much more comprehensive emergency-type of medical service would be necessary. For that reason, we have formed the Organization for Local Emergency Medical Services — an organization which already has correlated activities of organizations and institutions providing medical service, nursing, and hospitalization to persons injured in air raids or other war activity.

I have appointed Dr. Edward R. Kumbiegel, City Health Commissioner, and Dr. Harry Sargent,

medical superintendent of Milwaukee County hospitals, as co-chairmen, and a staff of high ranking medical and nursing representatives, including representatives of the Red Cross, the Police and Fire Departments and other agencies. The organization has full powers for overall supervision of emergency medical service in the entire County of Milwaukee.

Protecting the Water Supply

Another municipal agency—the Department of Public Works—stands in readiness to maintain services to the public regardless of the scope of the emergency.

For many months, Milwaukee's two pumping stations and the water purification plant have been closed to visitors as a precautionary measure. This policy is still in effect, but has been fortified with additional precautionary steps.

On December 8, 1941, the day the President of the United States declared our nation in a state of war, the Common Council of the City of Milwaukee decided to authorize an appropriation of $200,000 which was to be used in the erection of wired fences around our water works, and for the availability of 40 special guards. Consequently, the 1942 budget of the City of Milwaukee was placed on a wartime basis, making it sufficiently flexible to meet any defense emergencies. The changes involve no increase in the tax rate of $25 per $1,000 of assessed valuation or the tax levy of $20,446,000. The language covering certain specifically designated items in the budget was broadened to permit the use of funds set aside for those items for wartime use. Fortunately, this made $1,377,000 available for emergencies.

Other Emergency Activities

The anticipation of allocation of funds to the city by the federal, state, or county governments for wartime measures, brought about an entry in the budget which will set up such aids in a special fund and authorize the Common Council to expend up to $1,000,000 from it, if and when funds are allocated by other governmental agencies.

Milwaukee's Board of Harbor Commissioners has furnished information to the Chief of Engineers and the United States Maritime Commission on port facilities at Milwaukee. Precautionary steps have also been taken against any subversive activities that may be aimed at our port and its facilities.

Other units of the municipal government, such as the Board of Public Land Commissioners, the Central Board of Purchases, the City Service Commission, the Office of Inspectors of Buildings, the Public Library, the Municipal Reference Library, and all the schools of Milwaukee, have focused their attention on wartime emergencies and now are undoubtedly all prepared to meet and cope with any situation, regardless of how serious it may be.

Another important phase of defense activity of the Milwaukee County Defense Council is the work of the Transportation Committee, which has elaborate plans for transportation of the populace in the event of a forced evacuation.

Blackout preparations are in full swing and before this article appears in print, the Common Council of the City of Milwaukee will adopt a blackout ordinance and probably set up a wartime board with broad powers of action. Fingerprinting of all city employes will get under way soon, and then possibly the fingerprinting of all civilians will be undertaken.

The emergency blackout program will include plans for the shading of automobile headlights and the control of traffic under blackout conditions; the darkening of public and private buildings and the control of crowds suddenly and unexpectedly thrown into darkness; the blackout of the city's industrial plants; the control of harbor lights and ship lights; the dimming of all street lights, automatic traffic regulators, and various advertising units.

In the emergency of a threatened or actual air raid, the air-raid warning corps will be swung into action, utilizing local radio stations to inform the public what to do. Fire sirens will be used as signals.

Civilian Defense Volunteer Office

The appointment of Colonel John C. Davis, director of the Citizens' Bureau, as executive director of the Civilian Defense Volunteer Office, and the opening of headquarters at 740 North Water Street, with 18 branch libraries and all Town and Village Halls serving as registration centers for volunteers, complete the picture of what Milwaukee has done in national defense.

I feel that Milwaukee County has a unique defense structure which will be able to function smoothly, efficiently, and effectively when and if the time arrives. It has required many months of arduous work, but it all is worth while—for we in Milwaukee are now prepared.

The measureless resources of our city are being tapped for defense and military and naval needs. The work and might of our people will aid in the defeat of the foes of Liberty and Democracy.

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To Build a Free World for All Men

From a statement issued December 9, 1941 by the Council for Democracy—Raymond Gram Swing, National Chairman

This is the crisis of our world. . . . The long struggle will be the giant testing ground for all we believe and love, for all we have built for two centuries, and for the future we mean to build. We shall not abandon our democratic faith, either during this war, or when this war is done. No matter what we must face, we mean to see that democracy shall live and grow. The issue is grimly plain. But we shall go forward—not in vengeance, not merely to destroy, but to build a free world for all men.

What American Cities Can Learn From Wartime England

By Alderman Emil Davies

The writer of this article was chairman of the London County Council—the city government of Metropolitan London — during the whole period of intensive enemy raids. At the request of some of the associations of municipal officials, he is visiting the United States in order to give us the benefit of his experience.

IN writing of London's war experience, I am fully conscious of the difference in the conditions on this side of the Atlantic. London is within 20 minutes' flight of some of the German-occupied air fields and has had as many as 500 bombing planes over it in successive waves during 24 hours. No American city is likely to undergo this experience, but that some of your cities may have "token" raids (or "nuisance" raids as we term them), appears to me to be quite within the bounds of probability.

A state of war reveals the importance of city government, which alone can supply the necessary nucleus of trained officials and staff out of which can be built up the staff required for the many new services that have to be created, as well as for the extension of existing services. No central government has the additional staff available. In London we had to expand our Fire Department from 3,000 men to 30,000 men and women; our ambulance department from 400 men to 10,000 men and women; and to institute an entirely new department called the Rescue Service, consisting of 10,000 builders and laborers. Speaking generally, we have found the most practicable method of dealing with the war situation to be that the city government acts as agent for the central government, the latter reimbursing the former for its expenditure.

Air-Raid Precautions

We have found it desirable to have as much uniformity as possible throughout the country. Thus the warning signal (or "alert" as we term it), is the same whether one happens to be in London or in Liverpool; and blackout regulations are also identical throughout the country, as are speed regulations, limiting the motorist to 20 miles an hour in any built-up area during the blackout.

Since I have been in your country I have observed considerable confusion of thought as to what should be done when an "alert" is sounded. Our experience in Britain has led us to make a sharp distinction between an "alert" and an actual raid, the former being much more frequent than the latter. At first, our natural inclination was for everyone except the police, wardens, and other officials to take shelter. We soon discovered that this dislocated the life and industry of the community quite unnecessarily, and while people were free to take shelter if they so wished on hearing the warning, the majority went on working.

When the anti-aircraft guns begin firing, or other explosions are heard, that is another matter and the streets are quickly cleared. Motorists not only have to park their vehicles at the side of the street but are required also to lock them so that they could not be used by parachutists or "fifth columnists." If the defenses of a city are adequate, there will be a lot of gunfire; and as what goes up into the

Three-tier tubular-steel bunks like these have been installed in some of the air-raid shelters in London. The center bunk lowers to form a back-rest for shelterers who use the lower section as a seat during the early part of the evening

Blitz Canteen serving a midday lunch to the Auxiliary Military Pioneer Corps engaged in debris clearance work in London

air usually comes down in the shape of shrapnel or jagged pieces of metal, it is desirable that, immediately there is gun-fire, the streets be emptied except in the case of air-raid wardens, etc., who for this reason should be furnished with steel helmets.

I may say that all this experience has shown us the absolute necessity of centralized control in the event of an air raid. The enemy pays no regard to municipal boundaries. For defense purposes we have had to divide our country into twelve regions, each with a central control office from which the chief in command can mobilize and send firemen, rescue parties, ambulances, and the like, just where they are required. A set-up of maps and electric signals, linked by telephones and messengers with all parts of his area, show him at a glance where these services are most needed.

Evacuation

Someone, at some time or another, has to make the momentous decision as to whether it is desirable to evacuate the school children from the city. And by evacuation I do not mean, as some people are wrongly using the term, sending them from school to their homes, but removing them from the city itself. This requires as much organization in the reception area as in the evacuation area—and the latter we have found needs to be larger than the narrow limits of existing outlying municipalities, because you cannot have the overlapping of a number of small authorities each endeavoring to make their own arrangements in the county districts.

In the outlying area a billeting officer must be appointed who takes a census of available accommodation and has compulsory powers. If when the children are evacuated their teachers can be present to assist the billeting officer or his helpers in placing the children in suitable homes by giving an indication as to their home environment, so much the better. Billeting arrangements cannot always work smoothly and we have set up billeting tribunals locally which can determine disputes. Billeters in England are paid, roughly, $2.50 per week per child, which they collect from the nearest post-office. Other residents whom we evacuated from cities considered to be in danger, were expectant mothers and old people. Speaking generally, evacuation has proved to possess more advantages than disadvantages. It has so improved the health of the children, both bodily and mentally, that it is proposed to provide a stay in the country for some weeks as a permanent feature of the British educational system.

Rest Centers and Food Kitchens

The first thing the city has to provide is rest centers for people who are rendered homeless by enemy action. These we organized on the first floor of schools, in church halls, or in large unoccupied buildings. In addition to supplies of emergency rations, the equipment included toys for the children, radios, and other distractions. Experience soon taught us, also, how necessary it was to have an information desk at which a social worker could answer the numerous inquiries that were made, or could

Refuge room with a "Morrison shelter," the top of which makes a first-class games table

at least direct people to sources of information.

The idea of these rest centers was that after a few hours the people should be found new housing accommodation; but what was unforseen was the delayed action bomb—a bomb which may explode in a few moments, a few hours, or only after a delay of several days—which meant that thousands of people were rendered *temporarily* homeless until such time as the unexploded bomb was safely removed. Rest center accommodation had therefore to be extended. For the same reason it became necessary to institute feeding centers. A bomb which immediately or subsequently destroys water and gas mains may cause thousands of houses which are themselves undamaged to be without cooking facilities.

We found it necessary, therefore, to institute a series of food kitchens from which people could fetch hot meals; and a further demand quickly developed for sit-down accommodation at those centers. These have proved so successful that in London alone we have something like 300 of these communal restaurants called Londoners' Meal Service, and throughout the country thousands of so-called British Restaurants which are run and staffed by the municipal governments, supply meals at cost. The nucleus of cooks is furnished by the dieticians and domestic science teachers who were attached to the schools; and the advantages of communal feeding in regard to cheapness and scientific preparation are so obvious that these also will remain a permanent feature of our national life.

Women's Volunteer Services

A law passed by the central government gives the city authorities power to requisition any buildings they require for housing or civilian defense purposes and this has been done in thousands of cases. Country houses outside municipal limits have also been requisitioned for use as maternity homes, convalescent homes, and hospitals for difficult children. In all these new services voluntary workers, and particularly such organizations as the W.V.S. (Women's Voluntary Services) which has enrolled nearly 900,000 members, have proved invaluable, but our experience has shown that it is essential that they should not act independently, but in full concert with, and under the direction of, the local authorities—which, as I have already emphasized, act as the agents for the federal government.

New Municipal Functions

And finally, I would add, that the war emergency has shown both the central government and the people of the country what a fine organization had been built up by the big municipalities in the shape of their trained staffs, many of whom have had to assume new duties and exercise initiative which would never have been permitted in peacetime; and a new relationship has sprung up between these officials and the public, rising out of the fact that the former are no longer regarded as makers or inspectors of by-laws and regulations, but as protectors, helpers, and advisors of the community.

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Blackout Ordinances Give Broad Powers to Mayors, City Managers, and Police Chiefs

BROAD powers are given head officials of cities or municipal defense agencies in many of the blackout and war emergency ordinances enacted by cities since war was declared, reports to the American Municipal Association reported on December 29.

The ordinances thus far enacted fall into four classes, the Association said. They range from the type that delegates all authority to the mayor or city manager to the type providing for no delegation of power but outlining completely the orders on civilian conduct during blackouts.

The first city in the United States to enact a blackout ordinance was Seattle, which adopted such a measure nearly a year ago preparatory to a practice air-raid drill. This ordinance, replaced earlier in December by a new law, was of the type vesting the mayor with all authority to proclaim emergency rules with the force of law. Other cities which now have similar ordinances are Washington, D. C., Baltimore, and Richmond.

The Baltimore ordinance goes so far as to authorize the mayor to make traffic regulations for defense purposes, and gives him power to complete necessary arrangements with authorities of surrounding counties in order to effect a synchronization of blackouts for the whole metropolitan area. A special provision in this ordinance protects those who comply with blackout rules from damage suits.

The ordinance adopted by Portland, Ore., is of the type specifying what should be done about illumination of all sorts in a blackout, and states generally that "it shall be unlawful for any person, firm or corporation to refuse or neglect to comply with such orders . . . promulgated by civil authorities, or by the Army or Navy of the United States. . . ." The ordinance contains no provision for issuing further orders of any sort.

The blackout ordinance of Atlanta—the third type—vests the power of promulgating rules in the Municipal Defense Council instead of the mayor, without declaring how this procedure will fit in with the performance of duties by regular civil authorities. Additional provisions for combat action are provided, including use of the municipal auditorium as an emergency hospital.

The fourth type of ordinance, adopted by Los Angeles, directs the chief of police to sound blackout and all-clear signals on notification by the U. S. Air Force Interceptor Command only, and authorizes police and firemen to enter premises showing lights during a blackout. Persons who operate sirens or other devices simulating air raid signals are named guilty of a misdemeanor.

The San Francisco blackout ordinance is similar, but in addition gives the police chief authority to create an auxiliary police force without pay.

Violations of provisions in the various municipal blackout ordinances are punishable by fines ranging from $200 to $500 or prison terms ranging from 30 days to 12 months, or both.

Both the Virginia and Wisconsin leagues of municipalities have drafted blackout ordinances for cities.

For a "Model Ordinance on Blackout and Air-Raid Protective Measures," prepared by the National Institute of Municipal Law Officers, see page 107 of this issue.

Municipal Asphalt Plant Big Factor in Paving Program

New Plant Designed by Rochester, N. Y., Department of Public Works Has Many Novel Features To Insure Success

By Theodore Reed Kendall
Engineering Editor, The American City

WITH numerous automatic controls and a design intended to eliminate the dust which naturally originates in a hot-mix asphalt plant, the city of Rochester, N. Y., recently completed and placed in operation its second municipal plant.

The repair of asphalt pavements with material produced by a municipally owned and operated asphalt plant, in Rochester, N. Y., was begun in September, 1926, when the city purchased and installed its first plant. This original plant had a nominal capacity of 125 tons of hot asphaltic paving material per day, and was constructed by the Warren Brothers Co. of Boston, Mass. The cost, complete with site, deep well water supply, railroad siding, office building, and miscellaneous equipment, was about $40,000. The site is located on the Scottsville Road in the town of Chili, N. Y., about 3 miles in a southwesterly direction from the center of the city. The new plant is located at the same site.

This new plant is the outgrowth of experience gained in municipal paving operations over the last 14 years, and there is very little resemblance to the original plant, the only parts of which still in use, except for the site, are one asphalt storage tank and some minor equipment.

Storage of Materials

The materials required for making sheet asphalt at the Rochester plant are asphaltic cement and freshly quarried crushed dolomite limestone, together with fuel oil for heating. The limestone, specified as size No. 0, passing ¼-inch screen to dust, is delivered by the Dolomite Products Corporation, of Rochester, N. Y., by truck in 15-ton lots. The bid price received by the city early in 1941, was $1.47 per ton with a return credit of $1.50 per ton for the fines which cannot be used by the plant, but which are available for use as agricultural limestone. The aggregate is stockpiled and then rehandled by a P & H 204 crawler crane with a 45-foot boom and a ½-yard Williams clamshell bucket to the receiving hopper of a feeder and thence to the cold material elevator. All aggregate is weighed on the plant scales before being dumped on the stockpile. The asphaltic cement is purchased on a yearly contract, the 1941 contract

having been awarded to Mexican Petroleum Corporation at a bid price of $15.78 per ton. The asphalt is delivered by rail in 40-ton capacity thermal cars on a siding of the Pennsylvania Railroad west of the plant. After heating with steam to the proper temperature, the asphalt is pumped by one of two 3-inch Warren Brothers steam-jacketed, gear-type asphalt pumps driven by G-E 5-hp direct-connected induction-type gear motors giving a pump speed of 150 rpm and delivering approximately 250 pounds per minute. The asphalt is pumped to two storage tanks, one vertical tank of 100 tons capacity, and one horizontal tank of 80 tons capacity. The 100-ton tank is equipped with a hot well from which, during the operation of the mixing plant, asphaltic cement is pumped to the mixing control unit or by-passed back to the storage tank.

Steam for heating the tank cars and the storage tanks is supplied by a Scotch marine-type horizontal return tubular steam boiler of 60 hp and 125 pounds working steam pressure. The boiler is oil-fired by means of a Ray mechanical atomizing burner, automatically controlled by the boiler pressure and having a capacity for burning 35 gallons of oil per hour, which is sufficient for more than 150 per cent of the boiler rating. The motor driving the atomizer is a 1-hp induction motor.

No. 3 fuel oil is now used owing to its availability in the local market, and No. 6 oil can be used by pre-heating in the storage tank and ahead of the rotary burners in the boiler and dryer furnaces. Fuel oil storage is provided by a horizontal cylindrical tank of 20,000 gallons capacity located above ground and adjacent to the boiler house. Oil is delivered as required, by tank trucks, and the total consumption of oil is measured by a Bowser oil meter inserted in the common gravity discharge line from the storage tank. The 1941 contract for oil, amounting to 150,000 gallons, was awarded to a local oil distributor, Cleary Stations, Inc., at $0.0518 per gallon for No. 3 oil with a gravity of 25/35 degrees Baume-A.P.I.

Drying and Screening

The aggregate delivered by the crane to the feed hopper is passed through a Simplicity System apron-type feeder with a capacity up to 125 tons per hour. This unit has a graduated quantity control gate and is driven from the cold elevator head shaft. The material is discharged from the feeder to a Simplicity System enclosed bucket elevator which conveys the mineral aggregate to the breeching of the Simplicity dryer.

The dryer is a double-shell, return-flow, internally fired revolving cylindrical-type unit, 8 feet in diameter and 15 feet long. It is heated by a Ray horizontal rotary mechanical atomizing oil burner, to which the fuel oil, at a rate up to 150 gallons per hour, is delivered by a pump. The unit is driven by a 3-hp induction motor. The oil consumption of the burner is measured by Buffalo oil meters. The capacity of the dryer is from 40 to 80 tons of mineral aggregate per hour, having a 5 per cent moisture content and heated to 400 degrees Fahrenheit, when the atmospheric air is not less than 60 degrees Fahrenheit. The dryer drum revolves at 10 rpm and is driven with the feeder and cold material elevator by a 30-hp induction motor with a worm-gear speed reducer and V-belt drive.

The dryer is supplied with the required 12,000 cfm of air by a Clarage induced draft fan, driven by a 50-hp G-E induction motor with variable speed regulation and a V-belt drive. This air volume produces velocities in the dryer sufficient to pick up the smaller sizes of the crushed mineral aggregate. These materials are then separated

Flash photos of details of the Rochester, N. Y., Municipal Asphalt Plant during night operation. Left: the relays controlling plant operation. Center: the "Brass Brains" on the operating platform. Right: a Walter truck being loaded with hot-mix batches.

from the dryer gases by a centrifugal collector and returned by a screw conveyor to the discharge end of the dryer. The limestone as received has a higher percentage of fine material than is required, and from this screw conveyor a certain portion of the collector discharge is by-passed through an air stream to remove the required amount and size of fines. The 5,000 cfm of air for this purpose and also for removing dust from the screen, weigh box, and mixer, is provided by an American Blower Corporation exhauster-type fan driven by a 15-hp G-E motor. The dust-laden air from both fans is discharged into the dust-control building described later.

A Chain Belt enclosed bucket elevator, traveling at 226 feet per minute and having a nominal capacity of 55 tons per hour, driven by a 10-hp G-E gear motor, raises the hot mineral aggregate to the Symons horizontal single-deck vibrating screen, which discharges the graded material into storage bins having a total capacity of about 60 tons. The vibrating screen is 12 feet in length and 4 feet wide with the front, or feed section, 8 x 4 feet, equipped with 0.102-inch opening screen cloth and the rear 4 x 4-foot section with 5/16-inch opening screen cloth. The screen is carried on roller bearings and is driven at 800 rpm by a 5-hp General Electric induction motor with V-belt drive. It has an eccentric throw of 1 inch, and the entire screen is enclosed in a dust-tight steel structure.

The Asphalt Batch

The present batch weights of binder and surface mixture being made at the plant for placing with the mechanical spreader-finisher are as follows:

CLOSE BINDER

Asphalt	120 pounds
Stone passing 10-mesh	680 "
Stone passing 1 inch and retained on 10-mesh	1200 "

(This material has about 60 per cent passing a ½-inch screen.)

SURFACE MIXTURE

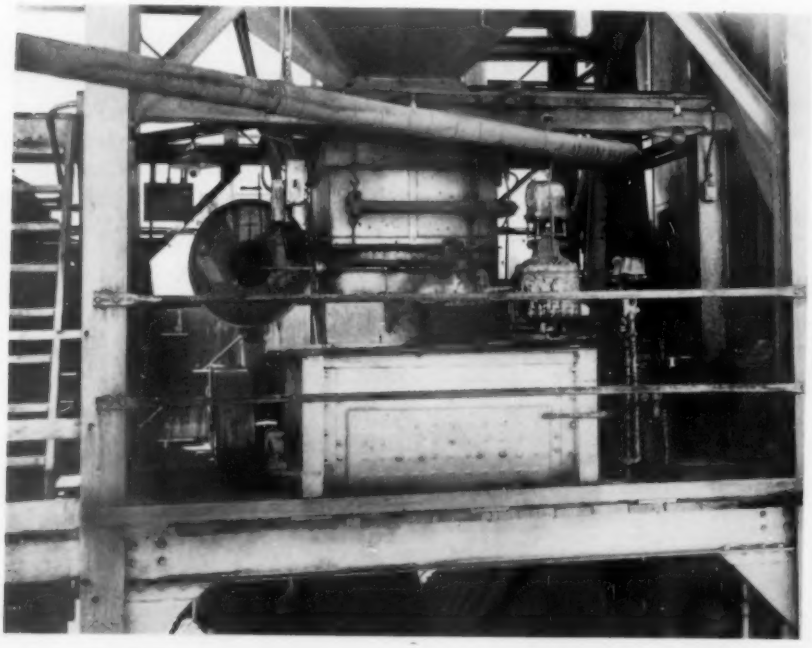
Asphalt 6 to 7 per cent
Aggregate passing 200-mesh, 8 to 10 per cent
Aggregate passing 10-mesh and retained on 200-mesh, 40 to 50 per cent
Aggregate retained on 10-mesh, 35 to 40 per cent

The batches weigh a ton-and-a-half as produced at the Rochester plant. A considerable portion of the binder is purchased by contract when the municipal asphalt plant is busy.

Automatic Control

After the dry aggregates have been weighed manually by cumulative weights on the Kron dial scales, the entire operation is controlled automatically by the Brayer system of electrical control, the relays and timers for which are located in the boiler room of the plant. With the weighed mineral aggregates in the batch hopper, the operator presses the start button which releases the weigh box gate lock and admits steam pressure to the mixer-gate cylinder, thereby closing the gate so that aggregates will not go past the pugmill. The timer, after a predetermined interval of dry mixing of the aggregates, opens the asphaltic cement solenoid control valve, and the liquid asphalt flows through a Pittsburgh Equitable meter with automatic temperature compensation. The proper amount of asphalt is discharged for the mix, being uniformly distributed across the mixer by a carefully designed spray bar which gives a uniform amount of asphalt across the entire length of the mixer. When the required quantity of asphalt has been discharged, the solenoid valve is closed automatically and the meter sets itself back to zero. At the same time the asphalt valve opens, the wet mixing interval timer starts and, after its predetermined interval, operates the solenoid steam supply valve which opens the mixer gate to dump the batch into the truck below and restores all controls to the original starting position. The dumping of the batch may be delayed by operating a holding switch manually in case no truck is available. The dry mixing cycle is 7 seconds and the final wet mixing cycle is 60 seconds. The over-all period per batch is approximately 1 minute and 50 seconds. This Brayer Fluidometer control, marketed by Hetherington and Berner, has proved very successful in three seasons of operation.

The asphalt mixer is of the pugmill type, steam-jacketed and with a steam-operated gate, and has a nominal capacity of 2,000 pounds. Arzite manganese steel liner plates and mixing blade tips are used. The Hetherington & Berner pugmill is operated at 57 rpm and is driven by a 40-hp G-E gear motor with a chain drive between the motor and mixer. The mixing blade tips are designed as to give "figure eight" mixing with the batch



The mixing platform at the Rochester, N. Y., asphalt plant, showing the Kron scales for weighing the mineral aggregates, the asphaltic cement meter with Brayer timing control, and the enclosed Hetherington & Berner 1-ton pug mixer

spread uniformly across the mixer box and not piled toward the center.

Every truck load of the asphalt mixtures manufactured at the plant is weighed on a Howe platform scale, and the driver receives a ticket which must be delivered to the foreman on the street when the load is dumped.

The Dust Collection System

The dust-laden air from the American Blower Corporation Sirocco Clarage induced draft fans discharges into the lower portion of the dust-control building where it passes through a system of baffles and suspended screens, the latter being moistened by atomizing nozzles so that in passing through the seven screens and over the seven baffles, about 90 per cent of the fines are removed. The remaining dust with the air is discharged through a set of bag filters in the upper part of the building. These bag filters are in duplicate sections, controlled by gates to permit cleaning one section while the other is in operation. The entire dust-control building, including the ¾-inch mesh screens and excluding the filter bags, is hosed down every day, washing the fine dust into a nearby intercepting sewer.

The dust-collection building is 18 feet wide, 65 feet long, and 33 feet high, and receives a total volume of 12,000 cfm of dust-laden air from the primary collector system and 5,000 cfm from the secondary collector system, or a total of 17,000 cfm. The 84 filter bags are made of coarse-weave canton flannel, are 13½ feet long by 18 inches in diameter, furnishing a total filter-bag area of about 5,500 square feet per unit. The final discharge of the air is upward through the roof in four 3-foot diameter metal stacks installed two stacks to a filter unit.

In this manner, all the fines originating in the plant are caught first in the primary collector connected with the dryer and in the secondary collector which receives the fines from the vibrating screen, weigh box, and elevator, and the dust which would be a nuisance in the air in the locality, is completely removed in the dust-control house and clean air discharged.

Electric power required for the plant is 3-phase 240/120 volts 60 cycles, purchased from the Rochester Gas & Electric Corporation.

The municipal asphalt plant at Rochester is operated by the Department of Public Works and is in charge of John V. Lewis, Director, Division of Maintenance and Operation, with Herwarth Bueg as Plant Superintendent.

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To Reduce Wartime Migration By Using Idle Plant Capacity

RECOMMENDATIONS on full utilization of America's industrial capacity and labor supply in the war effort are made in the Second Interim Report (dated December 19, 1941) of the House of Representatives Committee Investigating National Defense Migration, published as House Report No. 1553.

A systematic plan of putting to work all idle capacity and converting consumer-goods industries to war production is urged. Under this plan the committee suggests that the largest facilities should be immediately converted; medium- and small-sized plants be successively converted; and that meanwhile, in order to protect small business, existing allocation procedure should be geared into this conversion plan by graduating supplies of raw materials for civilian production sharply in favor of small- and medium-sized companies.

Discussing the importance of these recommendations, the report says in part:

"It is inconceivable that war can be waged successfully without such full utilization of our resources. The committee believes that to date there has been a profound lack of such planning and an absence of the attiude necessary for the organization of our economy on behalf of the total war effort which we now see is called for if victory is to be ours.

"At the outbreak of war, hundreds of plants are being closed, many by government request; unused plant facilities are causing widespread disemployment when every ounce of effort is needed. The communities in which such dislocations are under way are facing depression conditions and employment blackouts. Such failure to harness the ready energies of these cities and towns throughout America is inevitably having a serious effect on civilian morale. To this committee it seems a credit to the American people that this effect has not been more widespread. The country must be shown, and shown soon, that it is operating according to a plan which utilizes every hand for the work of war and the preservation of our liberities.

New Millions of Jobless Workers

"To the millions of our citizens still unemployed there are now being added new millions of jobless workers, caught in the gap between curtailed civilian and lagging war employment. Unless prompt measures are taken to close this gap and to relieve the condition of those who will not be immediately reemployed, hundreds of thousands of these workers will, in the American tradition of self help, take to the road in response to reports of employment elsewhere. These workers, suddenly deprived of employment, may migrate in much greater numbers than the unemployed of the depression decade. In many instances, these new migrants will leave communities where in a few months they will be needed to man war industries, thus setting in motion a double migration. Crowding the centers of production already suffering from lack of housing, health, school and other community facilities these new 'priority migrants' will aggravate these conditions so detrimental to the morale of our defense workers.

"This undirected and uncoordinated migration of workers will, in the opinion of the committee, be a national calamity. Except for special skills, there can be no immediate nation-wide shortage of labor in defense centers. Increasing numbers of unemployed in each defense community compete with migrant workers, who, unemployed in their home communities, are attracted to the centers of production by grapevine and widely publicized reports of work. The gravity and magnitude of this position as it relates both to the success of the war effort and to the widespread human suffering it entails, demand a prompt solution.

"Training and contracts for war work should be coordinated in order that the period of unemployment may be shortened. It is the responsibility of the Federal Government to afford to these dislocated workers who cannot be immediately reemployed the assistance of increased unemployment compensation benefits or of Work Projects Administration employment. Traditional conceptions of local responsibility are not adequate to meet conditions created by the present war program."

City Hall, the Citizen, and Defense

Organizing a Local Volunteer Civilian Defense Office

By PHILLIPS BRADLEY

• • • —

WAR has come again—and suddenly. This time, it is closer to our own firesides. The airplane has practically eliminated our ocean barriers, the Atlantic and the Pacific. Although we have not yet been bombed, we are no longer immune from a blitz—any day. Civilian defense is now an immediate concern of every town and city in the country.

Organized civilian defense is one of the urgent tasks just ahead for City Hall. It is already under way in many interior communities as well as on both seacoasts. The national and state governments are attempting to integrate a nation-wide system, to develop uniform patterns that will meet the immediate need for quick action to insure an adequate meeting of possible emergencies. The real job of organizing effective civilian defense will be—must be—done at the local level. City Hall, not the State Office Building or the National Capital, necessarily will be responsible for seeing that a blitz does not lead to disaster. However well-designed the blueprints are that come down from the national and state offices of civilian defense, it will be local officials who will do the real job.

Already, some problems are emerging that City Hall must take into account. Local conditions will, of course, determine how to meet these problems, but there are some questions on which experience is already indicating possible answers. These questions can be met most effectively if they are analyzed before rather than after local civilian defense is frozen into rigid patterns.

Recruiting

Nearly everyone is today eager to serve. The most frequent question we hear today is—"I want to help; how can I do so best?" This is one of the fine things about the American people. The first job of City Hall is to organize a civilian recruiting plan so that this spirit of service will not be lost in the shuffle of a hastily improvised office.

The national Office of Civilian Defense has already suggested a recruiting card for recording pertinent information about each volunteer. The New York City office has developed a card which records more detailed information. This record card can be filled out by the volunteer himself without the need of a personal interview with a trained interviewer. The important thing, in any case, is to see that the information recorded makes possible effective placement of each volunteer in a job for which he—or she—is well fitted. The more objective the record card, the simpler the recruiting job will be. It is important to have a record card file established *before* recruiting begins. On that file all the other activities of the volunteer civilian defense office depend.

Another problem that is likely to turn up before long, especially in the middle-sized and larger cities, is where to locate the recruiting office. In the smaller communities, the town or city hall is as good as any other location—and has the advantages of tieing in the whole civilian defense program with the official services. In larger communities, it is probable that sub-offices for recruiting should be established—so that people can get to them without having to travel long distances. School buildings and public library branches offer convenient neighborhood centers. Librarians and school administrators or secretaries can perform an invaluable service in a recruiting plan that enlists their loyalty and skills. They can become effective recruiters in their neighborhoods—and they will if asked.

This month Professor Bradley begins a new series on public relations for local officials, bearing directly on problems of citizen participation in civilian defense. This series, following "Local Government Is News," is intended to help those in charge at City Hall to interpret the new situation more effectively to the community. The November, 1941, article in the former series was an introduction to this new field of official action. During the next few months, further articles will deal with special problems as they arise. Send in your questions to THE AMERICAN CITY—and any valuable suggestions from your own activities and programs.

Citizen Committees

The whole program of volunteer civilian defense rests on the basic American principle of citizen-action for public service. The local civilian defense office will in most cases be manned and operated by volunteers. Plans and activities will be carried out by volunteers. Even in the official air-raid and fire auxilliary services, volunteers will play a large part in managing them.

In close cooperation with City Hall, there should be a citizen committee to help in drafting plans and in organizing their execution. This committee should be appointed by the mayor or city manager or the local board of supervisors or selectmen. It should include men and women who represent the community's medical and social services, civic groups, and business, professional, and labor organizations. In this way, City Hall can mobilize the expert help of every organized community civilian service—before as well as in an emergency. Such a committee will prove invaluable in working out programs cooperatively with responsible officials and in tapping the initiative and enthusiasm of the great body of loyal and eager citizens.

It should be attached directly to City Hall. Meetings should be attended by the city officials responsible for civilian defense services—fire, police, and sanitation. In this way, close coordination with the volunteer civilian defense office can be established—and maintained. Its chairman, or chairmen, should be the one or two citizens appointed to head up all the volunteer civilian defense work of the community.

The Volunteer Civilian Defense Office

A central volunteer civilian defense office should be set up before recruiting and other activities are begun. This office will be the key point of control of all the civilian defense activities in the community. On its efficiency will depend the effectiveness with which

these activities will be organized and coordinated. City Hall can well afford to give special attention—and aid—to setting it up on a sound administrative basis.

Many problems arise in setting up a central volunteer civilian defense office. Most important, perhaps, is that of staffing. The staff will be for the most part, if not entirely, volunteer. All types of office aides will be found among the volunteers—typists, stenographers, and file clerks. They should be classified as rapidly as possible to insure their most effective utilization. Regular schedules of duty at the central office should be established to insure continuous and adequate help in each office service from day to day.

It is important to have an efficient office manager. If volunteers are used, it is probable that two or three of the most experienced administrative volunteers will have to be assigned as office managers. There should be one person in charge of the office during all hours that it is open. If it is feasible to detail an experienced office manager from the city's civil service, the results will justify the assignment. In any case, whether a volunteer or professional office manager is in charge, he should be directly responsible—and report—to the chairman (or chairmen) of the local civilian defense committee. All the staff problems should be cleared through to these responsible persons to insure the effective running of the central office.

Relations of Official, Auxiliary, and Spontaneous A.R.P. Agencies

One of the knotty questions likely to arise in larger communities is how to intergrate spontaneous Air-Raid Precaution groups with the official and auxiliary services. American Legion posts, community clubs, and similar groups are taking a valuable initiative in developing their own watch services, air-raid and fire warden details, and demolition squads. Their initiative is valuable because it expresses and provides an outlet for the American genius —or passion—for organization. Such groups are all too likely to want to preserve their autonomy, to retain their independence and identity. Irrespective of broader considerations, such as the need for coordinating all services in their special field, they will often demand recognition of their separate organization.

When these spontaneous A.R.P. services duplicate or overlap the regularly organized auxilliary air-raid, fire, and demolition services, there are ample opportunities for friction, or at least for misunderstanding. Difficulties of this sort will be multiplied in an actual emergency. The time to meet them is before, not during, a blitz.

The problem is one that must be met in the first instance by the volunteer civilian defense office. In recruiting volunteers, this sort of situation is likely to become apparent. The office's first consideration should be to persuade such spontaneous groups already organized to volunteer through the official auxilliary service. When persuasion does not produce results, the problem is likely to require official review and appraisal. The value and validity of the initiative and loyalty of these groups should be recognized. But an official policy, pointed toward avoiding conflicts of jurisdiction in actual emergencies, may need to be established. The earlier it is worked out by City Hall—in cooperation with representatives of these spontaneous groups—the better.

There are many other problems which will inevitably arise in developing a sound volunteer civilian defense program in American towns and cities. Next month it is hoped to analyze some of them further.

AIR RAID WARDENS
PROTECTION OF INDUSTRIAL PLANTS AND PUBLIC BUILDINGS
MUNICIPAL SIGNALING SYSTEMS
INCLUDING SPECIFICATIONS FOR EMERGENCY ELECTRICAL POWER EQUIPMENT
ENROLLED VOLUNTEER WORKER GROUPS FOR
CIVILIAN PROTECTION
A CIVILIAN DEFENSE VOLUNTEER OFFICE
WHAT IT IS
HOW IT IS SET UP
WHAT IT DOES
HOW TO ORGANIZE IT
UNITED STATES OFFICE OF CIVILIAN DEFENSE
Washington, D. C.
BLACKOUTS
Civilian Defense
Suggestions for State and Local Fire Defense

Typical publications of the U. S. Office of Civilian Defense. (*See bibliography on page* 111)

Incineration of Garbage Aided by Sludge Gas

Cedar Rapids, Iowa, Collects Domestic Garbage Only; All Other Collections Private; All Disposal by Burning

The rear of the Cedar Rapids, Iowa, incinerator, showing the full height of the stack and the two ash tunnels

DESPITE the almost complete absence of paper and corrugated board from the collections in Cedar Rapids, Iowa, because junk men pick the town clean of these materials to sell in a $13-a-ton market, the combustion of garbage goes on without disturbance. Building the Nichols incinerator adjacent to the sewage-treatment plant, where over 165,000 cubic feet of sewage-sludge digester gas is produced daily, has completely solved the fuel problem. Even in August and September, when the preponderance of melon rinds and corn husks overloads most plants, the two blue flames from Venturite burners in the side and back walls of each furnace insure complete combustion at the Cedar Rapids incinerator. All this makes possible the destruction of the garbage for a cost of 60 cents to $1 a ton.

Refuse collection in the city is under the charge of the Health Department, which does not collect anything but garbage and that only from residences. Such rubbish as is delivered to the incinerator is hauled in by private trucks; and householders formerly had rubbish burners in the alley or paid to have the waste paper removed. At present, private collectors pick it up very promptly because of its value. No garbage or rubbish is collected from stores or hotels, which must pay for private collection. About 30 per cent of the total garbage burned at the incinerator is store garbage privately hauled to the plant.

The city owns three International trucks equipped with Elgin Refuse-Getters, three Dodge trucks and one Reo with dump bodies for the collection of garbage. Every delivery of waste products to the incinerator is weighed on Fairbanks platform scales adjacent to the plant by the druck driver, whether a city employee or a private carter, and the weight and name of the hauler are recorded on a ticket in a large book at the weighing shed. The trucks then back up against the curb at the edge of the pit and dump their loads through one of four wide openings, each of which may be closed with a roller door. Any refuse which is spilled on the gravel outside the building or on the dumping curb is picked up by the driver and tossed into the pit.

Charging and Stoking

The incinerator is rated at 50 tons per 8 hours burning time; in the fall of each year the receipts reach this weight, and at times another shift has been added to clean up all the material collected during the day of collection. In 1940 the city paid some over-time to the employees rather than put on a second shift. During the winter and spring it is a common occurrence to clean up all refuse in five days of burning instead of six.

The refuse dumped into the pit by the trucks is picked up by a 1½-yard Blaw-Knox clamshell bucket operated from a 3-ton P&H electric crane and is delivered to the charging hoppers over the two furnaces. The material is discharged into the basket or drying grate by the stokers below, and when sufficiently dry

Municipal and private trucks deliver garbage and rubbish to the Cedar Rapids, Iowa, incinerator

is raked over onto the burning hearth. The grate area of each furnace is 84 square feet. The operating personnel consists of one man on the outside doing general work, one crane man, one man on the charging floor, one stoker per furnace, and an extra man during rush times. The air for the forced draft in the furances is heated in a heat exchanger by the flue gas and is delivered to the grates by an American Blower Corporation fan.

Control

A complete record of the burning operation is maintained on a dual panel board mounted on the wall opposite the furnaces. This Brown Instrument Co. panel contains an electric clock at the top, and for each furnace a recording chart which shows in green the temperature of the pre-heated air and in red the temperature of the combustion chamber. By watching these temperatures carefully, the stokers can maintain a reasonably uniform temperature which is most effective for efficient operation. The combustion chamber temperature averages 1,450 degrees after cooling over night, and maintains a top temperature of 1,800 degrees Fahrenheit. The pre-heated air shows an average and almost constant temperature of 450 degrees Fahrenheit.

Ash Disposal

When the grates are cleaned, the ashes fall through into a hopper below the furnace in individual ash tunnels into which trucks can be backed and the Beaumont gates opened, discharging the hot ashes into the truck body. They are immediately quenched with a stream of cold water. Ashes are disposed of finally by delivery to the city dump.

In the ash tunnel is an Emco gas meter to measure the sewage-sludge digester gas delivered to the plant, and between it and the burners a PFT flame trap and a pressure regulator. Water for use in the plant for quenching, for cooling the incinerator walls, and for domestic purposes is measured by a National Crown meter.

The stack for the Cedar Rapids incinerator is 140 feet high, 14 feet 1 inch diameter at the base, and 8 feet 11 inches diameter at the top. The outside wall thickness is 17 inches at the base, and 7 inches at the top; and the inside diameter of the stack is 6 feet. The fire-brick lining is 13½ inches thick at the base and 4½ inches thick at the top; and the entire stack is reinforced with a steel corset lining. It has a 4-point single cable for lightning protection.

The Nichols incinerator is operated under the direction of John Mc-Intyre, Superintendent of both the sewage-treatment plant and the incinerator.

The sludge digesters and gas storage tank whence comes the auxiliary fuel for the Cedar Rapids incinerator

Inter-Municipal Cooperation

TWO interesting examples of cooperation among nearby municipalities—one of them international in character—were brought to the attention of THE AMERICAN CITY during December.

William J. McNulty, of St. John, N. B., writes:

Inter-community cooperation has been developed to an unusual degree on the St. Croix River, which for over 50 miles is the official boundary line between the United States and Canada.

Adjoining centers on the United States side of the river are Calais and Milltown, Me., and on the Canadian bank, St. Stephen and Milltown, N. B. One international bridge connects Calais and St. Stephen, and two such bridges join the two Milltowns. There is no break in the continuity on either side.

The four communities are allied on fire protection, all departments responding to an alarm from anywhere within Calais, St. Stephen and the two Milltowns. The police departments are also in direct affiliation and cope jointly with thefts and other crimes.

The water supply comes from St. Stephen, and this is believed to be the only instance of a Canadian community providing the United States with water. There is plenty of water available at St. Stephen, and the city of Calais is perfectly satisfied, apparently, with the service. It has been in force for many years.

The gas supply for the four border centers originates in Calais. Like the water, it is piped under the river.

The Independence Day parades are routed through St. Stephen, and when patriotic parades are organized in St. Stephen and Milltown, they are seen on the United States side.

The St. Stephen band was discontinued to effect a merger with the Calais band, and in which the membership is about 50-50, between the two sides of the line. The band plays on both. The St. Croix Club, with base in Calais, covers both St. Setphen and Milltown, N. B. The St. Croix Country Club, on the United States side, is the only golf organization for Calais, St. Stephen and the Milltowns.

Hundreds of births to Calais and Milltown, Me., parents have been in the St. Stephen hospital.

In the present war, a number of residents of Calais and Milltown, Me., enlisted in the Canadian army, navy and air force, at St. Stephen, and such enlistment also prevailed in the first world war.

Disaster-Relief and Defense

Three neighboring municipalities in California—Burlingame, Hillsborough and San Mateo—have entered an agreement creating a "three cities disaster relief and defense council," the American Municipal Association reports.

The council is organized "to coordinate all resources of the three cities and their citizens with the resources of various corporations, business houses and associations, for the purpose of utilizing them in the event of a major catastrophe, disaster, calamity or cataclysm."

A five-member executive committee is composed of the mayors of the three cities and two other persons appointed by the mayors, one representing the high school or junior college district and one representing the Red Cross.

The action was taken under authorization of a 1941 "mutual aid" act of the California legislature.

Water and Sewage Projects in Defense Zones

Greeley and Hansen, Chicago Engineers, Report Typical Work for Cities and Military and Naval Reservations

IT is fortunate for this country that its present administration had the forethought to begin the training of men for our augmented Army and Navy long before the Pearl Harbor disaster occurred. We have made good use of these months, through the construction of training centers for the men of our armed forces; and cities whose populations have doubled many times have taken steps to provide housing for defense workers and to increase their water supplies and sewage treatment facilities in like ratio. Some examples of present projects in these fields are recorded below through the courtesy of Greeley and Hansen, Consulting Engineers, Chicago, Illinois.

Tullahoma, Tennessee

This city is within a mile or two of Camp Forrest, which has a capacity for 30,000 troops. In October, 1940, it had a population of about 4,000, which has now increased to about 10,000. The Defense Public Works have approved a project estimated to cost, all told, $685,000, of which the city is to provide $200,000. The project includes additional water works and sewerage, including water and sewage-treatment plants. Construction work is starting immediately.

Columbus, Indiana

Columbus is the largest town adjacent to a proposed triangular division camp. The present population is 12,000; and it is estimated that it will be increased to 21,000 if and when the camp project is constructed. The city of Columbus is financing enlargements to its water works which are estimated to cost $350,000 and which will have adequate capacity to provide for the increased population.

Other Municipal Projects

Engineering studies and reports have been made by Greeley and Hansen for several other cities, including Medford, Oregon, and Rockford and Urbana-Champaign, Illinois, for projects to enlarge sewage-treatment facilities because of the proximity of War Department projects. These were not included in the first group of projects approved by Defense Public Works.

Camp Projects

The War Department, through the Construction Division, built many camps beginning in October, 1940, and ending in the spring of 1941. These camps varied in size from a few thousand up to 60,000 troops. Many of them, however, were for 20,000 and 30,000 troops. During the summer of 1941, additional camp projects were developed in a preliminary way, and these generally provided for about 35,000 troops in each camp project.

The Construction Division has prepared technical bulletins and handbooks on design and engineering, which outline the quantities of water and sewage per capita in such camps and the types of treatment plant most adaptable to this type of concentration. The bases of design of most of these camps followed the experience gained in long use and operation in municipal plants. Certain adjustments were made to the camp problem, having in mind the relatively short period of expected use, which was taken at five years as a basis of design.

Norfolk, Va., Project Extensive

The Hampton Roads Sanitation Commission, Norfolk, Va., is making project plans and estimates for sewage disposal in the entire Hampton Roads area. Already Defense Public Works have earmarked $2,500,000 for this project, and the Navy Department has stated its willingness to appropriate upwards of $1,000,000. The entire project will cost about $10,000,000, or perhaps more, and will require a public election to be held next spring. There will be about six sewage-treatment plants, which in general will comprise sedimentation and chlorination. Greeley and Hansen made an extensive report on this project in 1937 and at present are bringing the study up to date, based on new developments caused by defense projects and the enlargement of military and naval establishments.

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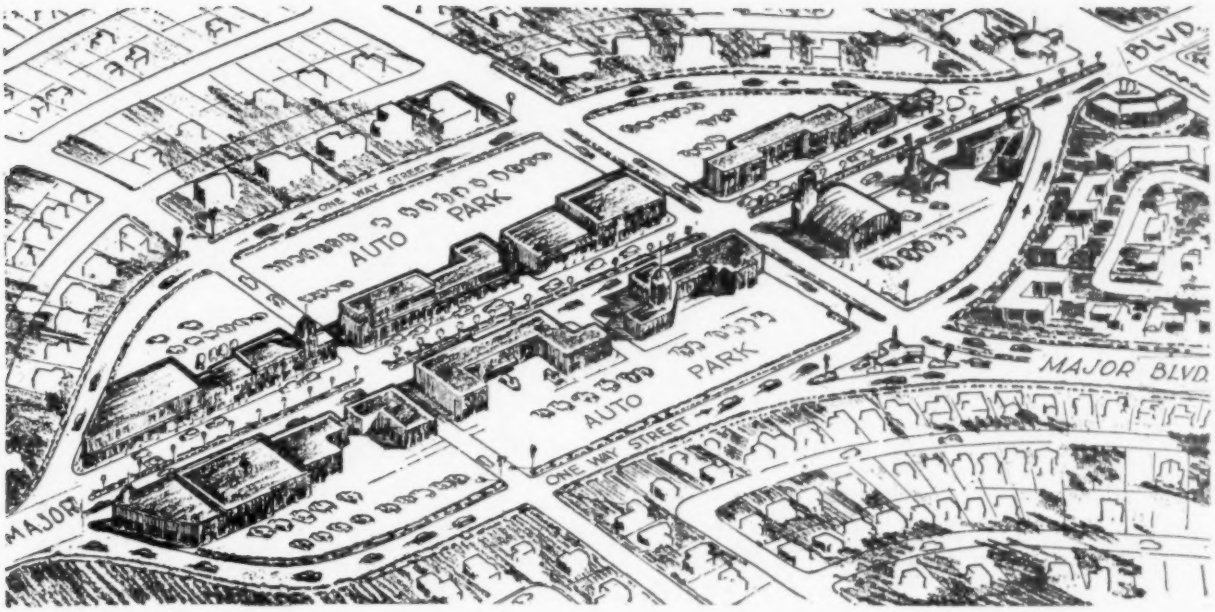
To Mobilize Waste Paper for War Duty

"There is no longer such a thing as junk. A pile of so-called junk, when rehabilitated, becomes tanks, bombers and bullets. A pile of old newspapers is a potential carboard carton to carry weapons and ammunition to their destination."

This statement was made December 20 by Leon Henderson, Administrator of the Office of Price Administration, in regard to the campaign now being conducted to mobilize waste paper for war duty.

"Every waste paper transaction between a housewife and her neighborhood waste dealer means that much more fighting equipment arriving at the proper place at the proper time," Mr. Henderson said. "Help by seeing to it that your dealer, and not your furnace, gets all your waste paper."



Unique Community Planning Follows Expansion of Defense Industries

By Henry V. Wall

Associate Planner, Board of City Planning Commissioners, Los Angeles

IN the vicinity of the Los Angeles Airport a new community is rapidly developing, because of the industrial expansion brought about by the defense program. This development is no ordinary one; it was planned in advance with property-owner cooperation, a new high in local planning history. Largely through the efforts of Planning Commissioner Wm. H. Schuchardt, the property-owners were convinced that an application of sound planning techniques would result in a stabilization of property values, a situation which any prospective buyer would appreciate. This unique plan also should inspire other communities as an example of a "Design for Better Living" — economically justified.

The landowners, each controlling approximately one-third of the 3,023 acres, very early assumed a common-sense attitude. The principal business area, shown in the accompanying illustration, is the result of much study and deliberation. Concluding that only waste could result from business-property competition, they agreed to have this business district, centrally located, in the development of which each would participate. Surrounding the large commercial district, properly located, in the development of which each would participate. Surrounding the large commercial district, properly located, small commercial service centers will be provided with facilities for the purchase of incidentals. These areas are to be landscaped to attain a desirable transition and also to eliminate the objection of their being located nearby or adjacent to such commercial uses.

Map of planned community development near Los Angeles Airport

A main highway passes through the business area and one-way by-pass streets will be provided to reduce the traffic loan and to facilitate movement. The motorist will find it convenient to avoid the congestion by leaving his car in a nearby parking place

while he shops in the business district.

Simplification of zoning administration will be attained because only the areas designated for commercial use are fronting the highways. Small lots, located between the highway and the rear of residential properties, provide areas which will be planted. These lots are sold in conjunction with residence sites and are restricted for all time by deeds against ingress and egress on the boulevard, thereby providing a control on the use of the land. It will be noted from sketch No. 2 that here the boulevard frontage lots face a quiet local interior road instead of fronting upon a traffic artery with all its disadvantages. This method of boulevard treatment is uniform throughout the area.

After the plan was worked out to the satisfaction of all, the property owners signed the map, with the following stipulation — "We, the undersigned owners or representatives of owners do hereby approve of this plan as a guide in the development of our properties." The plan was then signed by the President of the Planning Commission and attested by the Secretary. The plan is rapidly becoming a realization.

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How Britain Pays for the War

SIR KINGSLEY WOOD, Chancellor of the Exchequer, said in the House of Commons recently that the Government is spending at the rate of $44,000,000 a day on the war, and that its total expenditure approximates $52,000,000 a day, or at the rate of $18,980,000,000 a year. As total government expenditure in the last financial year before the war—the year which ended March 31, 1939—was $4,276,000,000, the increase since then has been more than fourfold.

The size of these figures is impressive, but they do not explain how Britain really pays for the war.

The war effort of which a country is capable depends on its wealth, measured not by bank deposits, money in circulation or any other financial yardstick, but by the number, skill and energy of its people; by its factories and other production facilities; by its resources of coal and other raw materials; and by the quality of its land.

Nation Is on War Footing

In addition to these assets, Great Britain had large investments abroad, the interest on which enabled her to pay for a large proportion of the goods and materials which were imported before the war; and, being an island, large numbers of merchant ships employed in carrying goods and passengers across the oceans.

Owing to the war many persons hitherto engaged in producing houses, motor cars, phonographs and clothing, and in rendering services to other people, either in commerce or in the home, have had to join the fighting forces, or have gone into munitions factories.

Many of the factories and other production facilities have had to switch over from the manufacture of peace-time goods to the production of war materials; or if they were unable to do this, have had to be closed down. Many investments abroad have had to be sold to pay for the import of munitions materials and finished munitions. Many ships have had to be diverted to the carriage of munitions, to the service of the Admiralty, and to the provisioning of expeditionary forces.

Real Cost of War

Britain, in fact, pays for the war by diverting the greater part of the skill and energy of her people, and of her production facilities, from providing the goods and comforts of peace to the manufacture of such wartime needs as tanks, aircraft and guns. The real cost of the war, in this sense, is the goods that would have been made, the services that could have been rendered by the people, and the production facilities now engaged in war effort.

In the main, Great Britain is paying for the war right now by foregoing the things that could have been made by the millions diverted to the war effort. The country as a whole will be poorer after the war to the extent that its population is decreased by loss of life; its factories, other production facilities, and its houses destroyed or worn out; and its overseas assets depleted.

Finance may thus be seen in perspective. It is the means whereby the Government transfers people and production facilities from peace-time occupations to war effort, and distributes the cost of the struggle among the population.

The Government needs money to pay the members of the fighting forces and their families' separation allowances, as well as the many civil servants and other persons on the national payroll. It needs money to pay its manufacturers for tanks, aircraft and guns. It needs money to pay for social services.

But the quantity of goods and services available to the public has been reduced by the extent of this transfer of people and production facilities to the war effort. Concurrently, with the reduction in the volume of consumption goods available for sale to the public, the Government has asked the people to hand over to it the money that can no longer be spent on such goods at current prices. The money thus handed over to the Government is used by it to make its payments to the persons now engaged in war effort.

How the Government Uses Money

The money handed over to the Government by the people consists partly of taxes and partly of loans. The first are compulsory and the second voluntary. Taxes have been designed to spread the burden according to ability to pay. Loans are designed to skim off any surplus possibly left over after paying taxes.

Taxes and loans to the Government, taken together, should be just sufficient for payment of bills incurred. If they do not cover the Government's expenses, the latter is forced to make up the deficiency by creating new money. But the people would be no better off should they spend more than they ought to, for they cannot increase the quantity of goods and services available. All that would happen would be an inflationary rise in prices.

The difference between taxes and loans is that in the first case part of the income of individuals is handed over to the Government outright, whereas in the second case it is lent, and therefore subject to interest and repayment of capital. But fundamentally the effect of the two methods is the same, in that they give the Government command over the resources that have been switched from the production of consumption goods to the manufacture of the tools of war.

—From *Bulletins from Britain* for December 10, 1941; British Library of Information, R.C.A. Building, New York.

Keeping and Expanding Our Social and Democratic Values

The Challenge of the War to Municipal Governments

By Walter J. Millard

A MAN with the honored name of Huxley sat in a bomb-shelter of the London zoo a few months ago. The explosive sounds of the dropping bombs and of the anti-aircraft fire punctuated another mixture of sounds which formed a background; this consisted of the music of Debussy coming from a radio, and the screeches and roars of lions, tigers, elephants, monkeys, and other animals in their cages. He was trying to sum up the direction in which the civilization into which he was born was moving and he saw the war as a part of that direction and movement. He finally wrote down: "Economic values are becoming subordinated to social values."

We in the United States are now in the same war which compelled Julian Huxley to huddle in a bomb-shelter and do his thinking in such a bizarre medley of sounds. What is its meaning to us and particularly to those who read such a publication as The American City because their job is to provide that bundle of services which we call municipal government?

Testimony from England

If we may judge from the testimony of municipal administrators who in other democracies have already gone through their baptism of fire, municipal government stands out as the one institution which in modern war becomes the embodiment of social values and the agency to which even a national government grants power to control and subordinate all other values, be they economic or what not.

The chairman of the London County Council during the "blitz," Alderman Emil Davies, is now in this country advising and consulting with municipal administrators eager to learn not only what they may expect war to do to their cities, physically, but also what changes will probably occur functionally. His testimony corroborates the testimony of those with similar experience. It is that the central national government becomes the guarantor of final payment for all local damage, for all extraordinary services local governments perform, and for all property and supplies needed to perform them. But the actual performance of all services necessary to ensure that citizens have food, clothing, and emergency shelter, that extraordinary fires are extinguished, that public utilities and traffic are maintained, and that the economic activity of the community shall continue at as high a tempo as possible—all these active dynamic functions and duties devolve upon local governments, and only upon local governments. Further the testimony is that where one large municipality is surrounded by lesser ones, the large one becomes the means by which the lesser ones function.

Are American municipal officials and employees willing and ready to meet such a challenge? The challenge is that our cities become the living means by which the social values for which we fight are exhibited and expressed. To ask that question is to answer it. Our municipal officials are prepared to cut red-tape, to expand personnel and train it quickly, and—above all—to grant to the humblest employee the right to "use his head" in an emergency, without waiting for orders from a "higher up."

The Frontier and the City

The reason officials are prepared to meet and solve such problems is that they are Americans. But while this is true in every sense, it leaves unstated the particular elements of Americanism which will be called into play. There are two such elements: the frontier and the city. Spiritually Americans are not far from the frontier. The self-reliance, resourcefulness, and ingenuity that the frontier made necessary for survival are still with us. Because the discipline of the frontier is in the people, it is in officials the people have made the means of carrying out their will. But millions of Americans today have spent many years of their lives in cities, even if not born in them. And city living is impossible without self-imposed group discipline and group action.

The combination of these two disciplines, the frontier and the city, can be relied on in the stern days ahead to be the means by which the democratic freedoms will be buttressed and bastioned by city governments and those they serve. But it is necessary that there be opportunity for our cities to use these disciplines freely and with no one compelled to say in a critical juncture, "Sorry, but you cannot do what common sense says you should do; our city government has only limited powers."

God grant that no city of ours be "Coventryized," nor that "blitzes" visit us. But though our cities as a whole probably will not face physical harm, the strain on the administrators and personnel of our local governments will be heavy because the strain on their citizens will be heavy. Before that strain begins in earnest, city officials should be able to know in advance that nothing exists to frustrate the immediate solution of each problem as it arises.

The appointment of Mayor LaGuardia as co-head of Civilian Defense may be as much a symbol of what the war may mean to municipal government as it is the use of

a vigorous personality for an extremely important job. He is the mayor of our greatest city, and at the same time he works as the direct agent of the national government. Everything else is by-passed and short-circuited. The British experience parallels this relationship: British cities have had to be given freedom and treated as realities and not as legal fictions.

War changes everything, and "total war" fought for the great freedoms of democracy may be expected to change the hierarchy of values held by everyone. A description of local government made about one hundred years ago stated that it was then "anarchy plus a policeman." It may well be that one of the strange changes total war will bring is freedom to our cities enabling them to bring order wherever anarchy appears. As a result of being free, the motive of service which animated our municipal personnel even in time of peace to a far greater extent than most of us realize, will rise to such heights and win so many victories that city governments will have become, when the war clouds clear, the best embodiment and expression which will exist of the social and democratic values for which we fight, and fight to keep and to expand.

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Health and Welfare Services Essential to Wartime Efficiency

By JESSE O. IRVIN
Director of Information, Office of Defense Health and Welfare Services Federal Security Agency

WHAT obligations does the community owe its citizens during wartime? The first and most obvious answer to this question is, of course, armed protection against all threats of armed aggression. But there are other dangers just as threatening, other protections just as necessary—protections against sickness, bad food, ignorance, broken homes, waste of leisure time, and unwholesome housing.

A democratic nation must strive constantly to improve the lot of its citizens, and that obligation remains, indeed becomes perhaps even stronger, in wartime. Take Britain for example. She has extended health insurance, nutrition programs, recreation programs, family welfare programs; old age, survivor's, and unemployment insurance; workman's and soldier's compensation; and even art, music, and the drama are being subsidized by the government. Britain has found these things necessary for her defense, for Britain is not doing anything now that is not necessary. There has been no talk of throwing social services overboard there. And the thing we mark most carefully in our observation of Britain is the strength of British morale, the ability of the people to "take it."

For these same reasons, it is necessary for America to strengthen the cause of democracy in our land, to protect our home front.

The Office of Defense Health and Welfare Services was set up to derive the maximum benefit to the defense program from the activity of public and private agencies operating in the fields of health, family security and child care, recreation, nutrition, education, and social protection, and to stimulate further development where necessary to achieve the following ends:

(1) Social security of individuals and communities suffering disproportionate economic, social, and health burdens as a result of military and industrial war activities.

(2) Assistance to civic agencies and individuals in making effective contributions to the health, welfare, and morale of men engaged in military service.

(3) Promotion of health, security, and morale of civilian population as an essential part of effective defense.

Major Responsibility to Municipal Officials and Local Agencies

It is not the objective of this Office to set up new agencies, but to utilize existing agencies, expanding them where necessary to meet needs. Though the war is a national emergency, we continue to delegate major responsibility for safeguarding health and life, for protecting property and promoting opportunity, and for maintaining civil liberty to the local community.

Working together, our federal, state, and local governments have developed a constructive program, designed to bring the goals of democracy within the reach of all people. We must now integrate these and make full use of them in our war effort.

The best place to deal with dangers is where they threaten. The place where things happen to people, where they need protection, is in their own home towns.

There must be full recognition in every community of the need for health and housing, for education and recreation, for the general welfare, and for civil security.

Municipal officials, the duly elected or appointed representatives of the people in the community, must have a full-bodied, three-dimensional picture of community services, in order to mobilize all agencies for the complete protection of the civilian population.

Let them not forget that along with the air-raid wardens, plane spotters, and fire wardens, the public health officer, the social worker, the educator, and the recreation leader are needed on defense councils to round out the picture of complete protection on the home front.

Money Saved by Punched-Card Purchasing and Stock Control

By W. S. WENDT
City Comptroller,
Milwaukee, Wis.

AT THE close of the last decade, Milwaukee, like many other large municipalities, faced the problem of ever-increasing expenditures for supplies, materials, and services necessary to operate properly the various public services. Approximately two-thirds of all taxes collected by large municipalities are appropriated for the purchasing of these commodities. During 1938 the City Comptroller studied this problem, with a view to streamlining the purchasing and storing of all supplies, materials and services.

After careful consideration, the Comptroller decided to adopt the punched-card system of Remington Rand Inc., to be operated in connection with the creation of a Central Stores Control of all supplies and materials purchased by the various departments of the city government. It was felt that this system and equipment would best meet the requirements for efficient and economical operation of a modern Central Stores Control. The punched-card system of control is defined as a system of punching original data into cards, then, by a rapid system of machine sorting and arranging the punched information into many sequences, after which it may be applied to various types of reports and controls, being limited only by the amount of information punched.

Storehouse 1-24 Before and After Modernization

Under the old method of stores control, each department or bureau was responsible only to itself for the storing of supplies and material. Stock-control records were haphazard and antiquated. This was especially true in the disbursement of materials. Material disbursements were charged against an expense charge number by anybody except the storekeeper. Responsibility for stock was disclaimed by practically all storekeepers because of general accessibility to stockrooms by employees and the public at large. In most cases stockrooms were not enclosed, and others because of their location and dilapidated condition were easily accessible and undoubtedly suffered from theft.

Prior to the installation of the Central Stores Control system, it was a common practice for the various departments to spend all available funds during the final quarter regardless of requirements. Owing to the lack of a control over stock purchases, the departments accumulated a physical inventory of $985,000 as of January 1, 1939, practically all of which was stored under most unfavorable conditions, and in many instances without proper supervision.

Effective January 1, 1939, the Comptroller's office began operation of its Tabulating Division. The primary purpose of this division was to centralize stores control of all city departments and furnish statistical information for efficient

budget preparation and control. A program of reconstruction of storerooms made possible the installation of a standard storage equipment which enabled us to reduce stock on hand and to take the annual inventory with a minimum of time and effort. The accompanying photographs illustrate the results of this program at storeroom 1-24.

Uniformity

A Commodity Code index, identifying with a number every item of supply and services purchased by the city, was edited and distributed to all persons initiating requisitions. This index enables departments to requisition with uniformity.

New regulations required all departments to submit all requisitions to the Tabulating Division instead of directly to the Purchasing Department. This division carefully checks all requisitions, for correct coding, description, unit of measure, location, expense charge number, and stock-record information. The latter is to guard against over- or under-stocking of the item. After the purchase has been consummated by the Purchasing Department the requisition is ready for transcription to the purchase order. As the information is transferred to the purchase order by accounting machines having an automatic hook-up with an electric keypunch machine, a card is automatically punched for each commodity appearing on the order. All vital information, such as vendor, fund number, expense charge number, location, date, etc., is punched therein. These cards are transferred to the Tabulating Division, where all punchings are verified and placed in suspended files until the material is actually received and then vouchered through for payment. At this time the cards are transferred to the active files and are ready for actual tabulated reports.

Daily Reports of Stock

Similar regulations were put into effect covering the disbursing of materials from the various storerooms. Daily detailed reports are furnished the Tabulating Division of all stock disbursed. Receipt reports, furnished by each storeroom, designate the vendor's code, description, charge numbers, quantity and unit of measures. All this information is punched into cards, verified and tabulated.

As the result of an extensive survey of the stock-control problem, a master stores inventory control system has been installed in the Tabulating Division covering approximately 35,000 stock items now being stored in ten major and twelve minor storerooms. Stores received are posted daily to this record, and disbursements are posted on a monthly basis. This system provides a centralized control on purchasing and stock without any duplication of effort or records. It insures immediate reports on all surplus stock from all districts, being controlled at the central office. It eliminates the writing of purchase requisitions, and errors caused by incorrect, incomplete or illegible specifications. Maximum and minimum stock ordering points are expressed in number of months supply, which insures their being in agreement with current requirements. A signal control directs executive attention to all slow-moving and overstocked items.

The Comptroller is now in a position to furnish a complete history of each and every purchase made by the city—items purchased, prices, vendors, quantities, locations, number of times purchased during year, and the annual requirements of each department. Numerous other reports are available, such as material disbursements, job costs, analysis of labor, equipment costs, stores purchased and interdepartmental transfers.

Each department is furnished a monthly job-cost report of each municipal function and service it performs. From these reports a clerk will post the totals directly to the job ledgers without having to gather the information from daily time and material records. (See Job Cost Distribution Report.)

Accurate experience figures are now available to the Board of Estimate covering all items requested in current budgets. Because of these accurate experience figures now on file in the Tabulating Division, it was possible for the Board of Estimate to reduce the requests for the purchase of supplies and materials on approximately 1,600 requisitions during 1939 and 1940 and entirely cancel more than 600 which were proved to be outright attempts to purchase in excess of actual requirements. *Unexpended balances of funds appropriated for supplies and materials were the highest in many years.* At the close of 1938, these funds had showed expenditures in excess of appropriations of $28,000, while 1939 and 1940 expenditures, in spite of a reduction of $300,000 in appropriations, were reduced to the extent of returning $261,000 to the surplus account at the close of these years.

A decrease in inventory values of approximately $140,000 was effected in the departments under control of the Central Stores Division. All these decreases can be directly attributed to the strict control over purchases of stock items by the Tabulating Division of the City Comptroller's Office.

Crime and Traffic

The Tabulating Division compiles monthly and annually statistical data for the Common Council, Federal Bureau of Investigation, and National Safety Council, and special reports from time to time for other purposes. This division is also called upon on numerous occasions to analyze criminal complaints in an effort to associate crimes with criminals who are in custody. The information, being on punched cards, can be analyzed with respect to modus operandi of the criminals, resulting in a great saving of time in checking back on the complaints on file in the Detective Bureau.

The information given in the traffic-accident reports is recorded on tabulated cards in such a manner that we can analyze all accidents within a given area, on a street, or in regard to details of the accidents; such as type of accident, time of day, causes, etc.

It is the opinion of this office, that with the expansion of the system to include every possible statistical and accounting application in the municipal government, greater efficiency and economies will be effected.

Road-Mixed Retread on Hillside Streets

Stillwater, Minn., Has 3-Mile Resurfacing Program with Tar over Old Surfaces Which Had Begun To Break

WITH the larger number of its streets running up and down hill, the problem of repairing is accentuated in Stillwater, Minn. Faced with need for economy but with an increasing number of streets requiring resurfacing, a program of road-mix retread with tar was developed and carried through with city equipment and labor. Broken pavement and high crowns added to the difficulty at the start; but these were eliminated by careful patching of all holes with a pre-mix of crushed bank-run gravel free of soil, and by using a shovel to remove the high crowns.

A mixing bed for the pre-mix—about the length of a city block and 100 feet wide—was established. In this area two windrows can be mixed at one time, using the same equipment that does the work on the street and furnishing a well-mixed patching material at low cost. This pre-mix is also used 3 to 4 inches thick to fill low gutters and to make up deficiencies in the quantity mixed on a street where an unusual number of depressions occur, using up the material which is mixed on the street and calculated to give a uniform 2½-inch mat when compacted.

Prime and Placing Gravel

A street to be resurfaced is cleaned by hand-brooming, all holes are patched, and then it is primed with 0.2-gallon per square yard of RT 6 tar for the full width of the street. The streets on which this work has been done have averaged 38 feet wide between curbs, with a maximum of 44 feet.

Following this, 27 cubic yards of gravel of a maximum screen size of 1 inch is windrowed on the center of a 44-foot street for each 100 feet of length. The material is then spread 30 feet wide by the pulled graders before shooting with the tar for mixing.

Shooting—Mixing—Rolling

The tar for binding the aggregate is purchased on a contract at a rate which includes its application to the street. The tar is placed at the rate of 12 to 13 gallons per cubic yard of gravel at the rate of 0.4-gallon per square yard per application. Because of the width of the distributor bars, it is shot in two 12-foot widths. The applications are continued at the 0.4-gallon rate until all the aggregate is properly and uniformly coated.

The mixing is done on the street with two International 10-20 wheel-type tractors pulling graders with 10- and 14-foot blades. The mixing continues with remarkable rapidity considering the fact that the hillside streets are on an 11 per cent grade. After the materials are well mixed and aerated and curing has started, the mix is spread for the full width of the street and rolled with a 15-ton Buffalo-Springfield roller. A slightly lighter roller would be better for the work, but the city owns a 15-ton machine.

The experience that Stillwater has had with this type of retread work has shown that for the 2½-inch compacted mat it would be better to use a maximum ¾-inch size of aggregate. The total amount of tar required for the work is about 1.2 gallons per square yard including the prime, mixing and seal. On this work the two tractors and blades average about 1,000 feet of completed retread for the full width of the street in 9 hours. On some of the steepest hills, however, it has been necessary to work overtime to complete this average.

During our interview on this work with J. A. D. Abercrombie, City Engineer, he pointed out that Stillwater was among the first in that section to use road tar for street surfacing. "Back in 1917 a light grade of tar was used as a dust preventive and then the bonding qualities of the tar were quickly noted. From that time to the present, by stepping up the grades of tar and improving the methods of applying it, an excellent substitute for high-type paving has been obtained," reported Mr. Abercrombie. Stillwater now has about 24 miles of it, 40 miles of streets tar surfaced, and about 13 miles of the surfacing is retread. The costs are assessed against adjoining property as benefits covering about 65 per cent of the total cost.

Road-mixing a retread surface going downgrade on one of the steep-grade streets of Stillwater, Minn.

No Waste Gas

at Fargo, N. Dak., Sewage Works

Combined Sewerage System, Five Lift Stations, Plant Has All Treatment Enclosed Because of Severe Winters

IN SPITE of a production of 25,000 cubic feet of 700-Btu gas in the digesters each day, there is no sewage-sludge gas thrown away via a waste gas burner in the Fargo, N. Dak., sewage works. Every cubic foot is used in burning screenings, heating the digesters, in the domestic hot-water boiler, in the laboratory, or in heating the building in winter.

The present sewage works, two miles downstream of the city—and this is to the north because they are located on the Red River of the North which flows into Hudson Bay—were designed by Buell & Winter of Sioux City, Iowa, and were placed in operation in May, 1940. The new plant, the interceptors, and the four new lift stations were built at a cost of $786,000, of which $377,000 was for the treatment plant. The total value of the entire system, including all sanitary and storm sewers, is $1,920,958.

Lift Stations and Diversion Weir

The sewage of the city is pumped to the final lift station at the plant by four lift stations, at each of which hand-cleaned screens are placed ahead of the Yeomans pumps, which are driven by G-E motors. The screens are cleaned once a day and the screenings hauled to the plant for disposal. Each primary lift station has weirs and by-passes for storm flows. The sewage-treatment plant has a capacity of 5 mgd. Just ahead of the lift station at the plant, diversion weirs are installed to by-pass all flow above 5 mgd direct to the Red River of the North. The average annual rain in Fargo is 22 inches, but there has been scarcely two thirds of this annually in the last 10 years. In this time the maximum storms have been as great as 2½ inches of precipitation in 2 hours.

The Plant Site

The sewage works are located on a 14-acre plot of land, which is landscaped and given a particularly attractive appearance during the summer months by the well-cared-for lawns and plantings of perennial flowers. All the buildings are of tile, tan in color, blending well with the green of the landscape. The lift station at the entrance to the plant contains three Yeomans pumps in a dry well with a basket screen outside the building. The pumps are driven by G-E motors with float control and deliver the sewage direct to the clarifier building.

Exterior of the attractively landscaped pump house at the Fargo, N. Dak., sewage works

One reason for the excellent appearance of the lawns at the sewage-treatment plant is that a small electric pump is installed in the sprinkling filter building with its suction in the effluent channel. This pump delivers to an irrigating system extended throughout the grounds, with taps for rotary sprinklers at a maximum of 50 feet apart. Plant effluent is an excellent watering medium which carries its own fertilizer.

The Office Building

The office building, measuring 82 x 43 feet, contains a garage for one car and one truck and a repair shop at one end, and adjacent to this the influent channel in which is installed a Dorr Detritor for the removal of grit, of which there is a considerable amount following heavy storms. Immediately ahead of the Detritor is a Jeffrey automatic screen, which is operated manually about once a day but which is not really needed because of the double screenings of the sewage at the lift stations before it reaches the plant. A Stearns gas-fired incinerator is installed for burning all screenings brought to the plant or originating at the plant.

In the same room with the Detritor are two Barnes sludge pumps for moving the concentrated sludge from the two 60-foot Dorr clarifiers to the digesters.

In this building also is located a well-equipped laboratory for the full-time graduate chemist who is employed to operate the plant. In addition, there are three men working on the grounds, lift stations and sludge disposal, etc., and the Superintendent in charge.

The sewage is applied by two PFT automatic syphons which alternate the dosing of the beds. Fixed nozzles are used for the distribution of the sewage over the bed. Originally metal umbrella-type nozzles were used, but these are being changed to vitrified clay nozzles made by the Red Wing Sewer Pipe Co. of Red Wing, Minn. Considerable trouble has been experienced with the trickling filters, with continuous unloading due to the phenols in the wastes discharged into the city sewers from the local gas plant.

The trickling filter beds are 8 feet deep and are filled with St. Cloud, Minn., pink crushed granite from 2- to 5-inch screen size. The

(Continued on page 78)

Above:
East entrance to the Clarifier Building showing the attractive landscaping. At right, north side of the Clarifier Building with the top of the dosing chamber at the left

Below:
The sludge beds with a screen of poplars between them and the remainder of the plant. The ski jump is nearly ½-mile from the plant

Installed in the office building is the boiler which furnishes hot water heating for the radiator system in winter, and also a battery of four gas-fired Basmor boilers with a 7,000-square-foot rating, to heat the water for the digester coils. The water is circulated by a small centrifugal pump which delivers it to the coils at 125 degrees Fahrenheit and returns it at about 100 degrees.

The Sprinkling Filters

The sprinkling filters, like all other equipment at the plant, are enclosed in a tile structure. The filter building measures 220 x 315 feet. There are two sprinkling filters, each 110 x 315 feet, with the main effluent gallery between them.

Diesel-Electric Gold in Garnett, Kansas

By William H. Gottlieb

DIESEL economy has provided the citizens of Garnett, Kans., with an abundant dependable supply of electricity at low rates, permitted tax reduction, and made the town more attractive to present and future residents. As a direct result of power plant earnings, this eastern Kansas town of 2,500 population has a 300-acre park, a 53-acre lake stocked with fish, a swimming pool, golf course, sports stadium, fair buildings, a new fire house, and a remodeled city hall.

Early in the century, the town owned a steam plant. Today, a modern 1960-hp diesel-electric plant consisting of a 360-hp Fairbanks-Morse engine installed in 1925 and renovated in 1941, a 600-hp F-M diesel installed in 1930, and a 1,000-hp Nordberg diesel engine put into operation in 1938.

The newest engine is provided with a continuous automatic supply of clean fuel without any attention from the operator. The 30 gravity oil, stored in three tanks totaling 28,000 gallons, built above ground outside the plant, flows by gravity to a 150-gallon day tank in the basement. A float valve admits fuel to the day tank whenever the level drops below a predetermined point. The oil is metered between the storage and day tanks. A built-in, engine-driven pump draws fuel from the day tank and supplies it through a duplex cartridge-type filter to the individual injection pump for each cylinder. The quantity of fuel injected is regulated to match load conditions by a relay-type governor.

Same Lube Oil for 33 Months

Lubricating-oil handling is designed to promote economy without lessening the protection of the engine. Bearings and piston cooling are served by a pressure circulation system which includes a cooler and a duplex strainer. During the 44 months since the engine was placed in service, it has not been necessary

Intake air is filtered and exhaust gases vent through a silencer at Garnett municipal plant

to drain the oil from this system. Cylinders are lubricated by mechanical lubricators. The oil picked up by the wiper rings at the bottom of each cylinder, drains to a tank in the basement and then is pumped to a tank in the room adjoining the engine room. The oil is cleaned in an activated clay purifier and stored in a clean oil tank to await return to the engine. For one week a month, an additive oil is used in the cylinder lubricators to counteract any tendency there may be to form sludge or varnish. A motor-driven gear pump serves as an auxiliary circulating pump for the crankcase system and is used to bring up oil pressure before starting the engine and to keep pressure up for a short time after the engine is shut down in order to cool the piston gradually. Success of the lube-oil system is evident by two striking facts: in the entire operation of this unit, there have been no stuck rings and no repair costs!

Keeping the Engines Cool

The cooling-water system affords maximum protection to the entire plant. A 500-gpm centrifugal pump driven directly by a 10-hp motor, circulates soft water through the engine jackets and the coils of a cooling tower. A duplicate pump-motor set serves as standby. A second pair of identical pumps takes raw water from the cooling tower sump and sprays it over the atmospheric-type tower. One pump is adequate for this service and the second provides the protection of a standby. An alarm warns the operator if either pump fails. A 12,000-gallon elevated water tank is connected openly to the engines' inlet water line and is kept from discharging by the pressure maintained in the closed system by the jacket-water circulating pump. Should this pump fail, however, the water from the tank would start at once to flow into the engine jackets. It is calculated that this supply would keep the engines cool for at least 25 minutes, giving the operator adequate time to start the standby pump. Rain water is collected and used for jacket makeup. Raw water makeup is drawn from the lake.

All Temperatures Read

A compact alarm panel keeps the operator informed of temperatures at eight vital points of the engine. A single instrument with a multipoint switch enables him to learn the temperature of the exhaust gas at each cylinder, the inlet and outlet jacket-water temperatures, and the inlet and outlet lubricating-oil temperatures. A safety control instrument sets off a howler if dangerous conditions arise in the oil or water circuits and a light goes on to show which is causing trouble. The ten-panel switchboard is equipped with all the instruments necessary for efficient operation of the plant and for accurate recording of power production and distribution. These include a vibrating contact voltage regulator, a synchronizer, a watt-hour recording meter, a recording voltmeter and 12 totalizing kilowatt-hour meters.

Engine air is drawn through a 6-

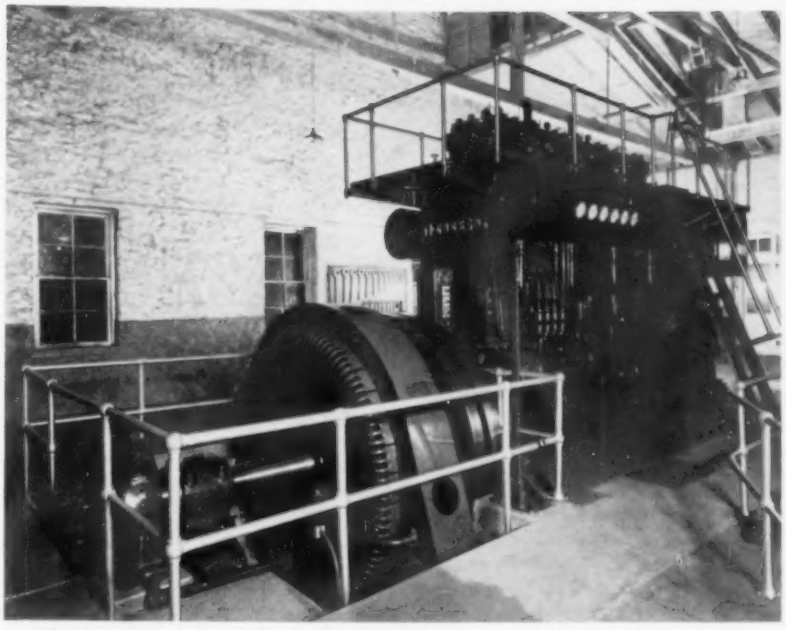
unit impingement-type filter set on a 3-foot pedestal just outside the plant. The intake header runs beneath the floor. Exhaust gases pass from the exhaust header below the floor and out to a vertical muffler at the rear of the plant. The exhaust mufflers and air filters are thus well separated, preventing any heating of the intake air.

0.7 Cent per kwh

A small town has some difficulties in recording a low cost per kilowatt-hour. The load after midnight usually drops far down, making it impossible to operate engines at maximum efficiency. Total kwh production is comparatively low, with the result that fixed costs, especially labor, are a high proportion of the production budget. With these facts in view, the economies of the Garnett plant are impressive. For the year ending June 30, 1941, the plant produced 2,329,700 kwh at an operating cost of $12,999, or 5.58 *mills* per kwh. This cost includes labor, fuel, lubricating oil, and supplies. There was no expenditure for repairs during this year. The sum spent in modernizing the 360-hp unit is considered a capital investment and will be charged off during the life of the renovated engine. Adding to the production cost a sum for depreciation of the entire plant on a 20-year basis, the total cost per kwh is only just 7 mills. Table I gives a monthly breakdown of operating expenses for last year.

Bright Future

Garnett engineers naturally have been anxious to use their new engine as much as possible to obtain the full value of its economical fuel consumption and have run this unit as much as 684 hours in a single month. Although this entailed operation at a poor average load factor, the engine has returned nearly 12 kwh per gallon of fuel consumed. Now that the smallest engine has been rebuilt, an effort will be made to achieve a better balance of service among the three engines. It is expected that, with an effort to improve operating engine load factor, the general plant average can be raised. It should be noted that



Newest and largest unit in the Garnett, Kans., plant is this 1,000-hp Nordberg diesel engine

Garnett is building for the future. Every year both the peak load and the valley load are higher. Industrial demand is small but increasing, consisting now of a furniture factory, an ice plant, a chicken packing house, and several machine shops. Other industries are being attracted by the low taxes and the ample supply of dependable power at low rates. With each improvement in load conditions, the diesel plant will increase its efficiency and reduce its unit cost of production. Citizens of Garnett are now receiving important benefits from their power plant in the form of low residential electric bills and substantial contributions to vital government services. These benefits have a reciprocal and a cumulative effect and inevitably will bring greater use of electricity, greater plant efficiency and greater benefits to the city of the future.

GARNETT, KANSAS

Engines and Generators

Engines—

One 1,000-hp 4-cylinder, 17 x 25 in., 257 rpm, two-cycle, mechanical-injection diesel, Nordberg Mfg. Co.

One 600-hp, 4-cylinder, 16 x 20-in. 257 rpm two-cycle, mechanical-injection diesel, Fairbanks Morse & Co.

One 360-hp, 6-cylinder, 14 x 17-in. 257 rpm, two-cycle, mechanical-injection diesel, Fairbanks Morse & Co.

Generators—

One 700-kw, 2,400-volt, 0.8 pf, 3-phase, 60-cycle alternator with 15-kw direct-connected exciter. General Electric Co.

One 400-kw F-M alternator with 15-kw direct-connected exciter.

One 300-kw F-M alternator with 12½-kw V-belted exciter.

Accessory Equipment for 1,000-hp Unit

Governor	Woodward Governor Co.
Fuel System—	
Fuel	Amco
Day Tank	150 gallons
Meter	Pittsburgh Equitable Equipment Co.
Filter	Wm. W. Nugent & Co.
Injection Pumps	American Bosch Magneto Corp.
Lubricating Oil System—	
Lubricating Oil	Nonpareil and RPM, Standard Oil Co. of Indiana
Mechanical Lubricators	Manzel Bros.
Cooler	Schutte & Koerting
Strainer	Schutte & Koerting
Auxiliary Pump	George D. Roper
Purifier Cartridges	Retrol of Filtrol Corp.
Cooling Water System—	
Jacket-Water Pumps	Fairbanks Morse & Co.
Raw-Water Pumps	Fairbanks Morse & Co.
Air Filters	American Air Filter Co.
Exhaust Pyrometer	Alnor, Illinois Testing Lab., Inc.
Safety Control	Viking Instrument Co.
Thermometers	Moteco
Switchboard	General Electric
Hoists	Yale & Towne Mfg. Co.

The big diesel is protected by a pyrometer which reads temperatures of eight parts

The Municipal Building, Irvington, N. J.

Town Fire Insurance Program Kept Up to Date

By HARRY E. STANLEY
Commissioner, Parks and Public Property, Irvington, N. J.

SOME years ago, the Town of Irvington, N. J., population 55,000, made a thoroughgoing study of its insurance problem. Specialists of The Home Fleet of Insurance Companies, New York, inspected all the municipally owned buildings; furnished estimates of their insurable value; omitted the 13 to 22 per cent of cost represented by the foundations and equipment below ground level; audited the existing program; and made recommendations which were adopted in full after an independent examination of The Home Insurance survey by B. F. Robinson, a builder and fire adjuster of Newark, N. J. This practical study was made for a local insurance survey commission of five citizens, reporting to the Mayor and Board of Commissioners.

Is Self-Insurance Cheaper?

Before calling in the insurance engineers, the Irvington insurance commission gathered nation-wide data to answer the question: "Shall the Town of Irvington adopt some plan of self-insurance on its buildings, in place of the present system of insuring them with fire-insurance companies?" The commission found that "self-insuring" cities either (1) do not insure their buildings against fire at all, or (2) build up a fund from which losses are paid. It appeared that any self-insuring city should have at least 100 units of property, and the fund should amount to the full value of the largest city-owned building.

Including schools, Irvington owns 48 buildings ranging in value from $150 to $850,000. It would take the town 30 years to raise the required fund, during which period fire-insurance premiums on a decreasing scale also would have to be budgeted, adding several points to the tax rate. The plan would of course add to the responsibilities of the Board of Commissioners—not merely in the beginning, but for all time. The policy of having such a fund and regularly increasing it would have to be accepted by every Board. The fund would have to be safely invested in marketable securities. Actuarial experience would have to be available for the adjustment of any fire losses. In other words, such a fund demands expert supervision. Would all future Boards of Commissioners command this? The insurance survey commission decided: "Since the primary object of all self-insurance plans is to save money for the municipality, and since it would not be possible to have any savings under self-insurance to reflect in a lower tax rate for at least 25 years in Irvington, your Commission is in favor of continuing the present policy of insuring with fire insurance companies."

The Report

The accompanying table presents the estimates of the insurable values of the buildings without contents, the existing insurance coverage, and the amount of insurance recommended by The Home survey checked by Mr. Robinson and accepted by the Board of Commissioners. It will be seen that in a number of instances there was over-insurance. A separate report was submitted for each building, giving the details of the rate and recommendations for correcting conditions which tend to increase the rates. The report indicates an effort to obtain the lowest rates possible. Reinspections are made periodically, the latest one in 1941.

It was found that no insurance was carried on the ambulance garage of the Irvington Hospital. The building was little more than a shed, but in view of its use a $300

insurance value was placed on it. The Decarie incinerator also was uninsured, although a fire in quantities of dry rubbish, stored in an adjacent pit for use on rainy days, could spall the concrete and damage the unprotected steelwork on the third floor. A $5,000 item now covers this risk.

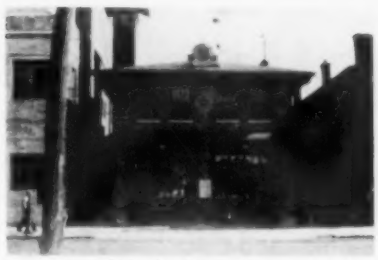
Reference to the table will show that two of the fire-houses were over-insured. On two of the houses the old policies were not concurrent. In all cases there were hazards due to the handling of gasoline, which the survey recognized must be understood and watched by the trained firemen. In No. 3 house, containing the fire alarm, it was urged that the soda-and-acid extinguishers in the battery and alarm switchboard rooms be replaced by carbon tetrachloride extinguishers, as the old type was a conductor of electricity and could cause severe shock if played on live wires. At headquarters, it was recommended that a 50-gallon gasoline tank-wagon be removed from the premises and that kerosene instead of gasoline be used for washing motor parts.

A rerating was obtained on the town garage, and an allowance was made for providing a metal waste-can and extinguishers, for "doing a Fibber McGee" on the closets and storage spaces, and for replacing an old burner for heating the building.

The general hospital was covered by a variety of policy forms, which often leads to complications in loss adjustment. This situation was corrected. The installation of vaporproof electrical equipment in the operating room where combustible and explosive anaesthetics are used, reduced considerably the hazards to life and property, with a saving in the premium.

The fire-insurance policies on police headquarters also were made uniform. Here, as in other instances, it was found that a policy was written at too high a rate and return premiums were collected. Recommendations included discontinuance of washing motor parts with gasoline, installation of a can for oily waste, removal of oxyacetylene equipment, installation of extinguishers. A further saving in rates and a safeguarding of prisoners' lives and police records were effected by abandoning the practice of filling the underground tank and gasoline reservoirs within the building.

The old town hall also carried a variety of policies by numerous companies which were made concurrent. Completion of minor improvements resulted in a reduction in rate. Before long, a fine new Georgian town hall will be added to roster of Irvington's buildings.



Fire Headquarters

Police Headquarters

Grove Street Firehouse

Incinerator

Wagner Place Firehouse

Playground Shelter House

Coit Street Firehouse

Irvington General Hospital

SOUND VALUES AND INSURANCE OF MUNICIPAL PROPERTIES OF IRVINGTON, N. J., AT TIME OF SURVEY IN 1934

	Appraised Insurable Value	Amount of Insurance
Ambulance garage	$ 443	none
Comfort station	1,500	$ 2,500
Field house, Chancellor Ave.	13,000	15,000
Clinic building	7,890	10,000
Engine house No. 2	18,900	15,000
Fire headquarters	25,320	23,000
Private garages	4,395	3,700
Engine house No. 4	59,500	65,000
Town garage	31,000	15,000
Incinerator building	57,700	none
General hospital	280,000	280,000
Garage, Shade Tree Comm.	1,950	2,500
Garage, Shade Tree Comm.	360	500
Dwelling	8,000	5,000
Field house, Orange Ave.	3,900	5,000
Police headquarters garage	90,000	91,000
Pump house at Center Playground	155	150
Service men's club	13,200	15,000
Tool house and garage	1,154	1,000
Town hall	29,572	30,000
Engine house No. 3	54,320	40,000

Municipal Action

The foregoing is a bare sketch of how the Town of Irvington streamlined its fire-insurance program; in fact, of how it happens to have a

(Concluded on page 78)

Pump Protection from Bombing

Advantages of Underground and Surface Installations of Well and Booster Pumps

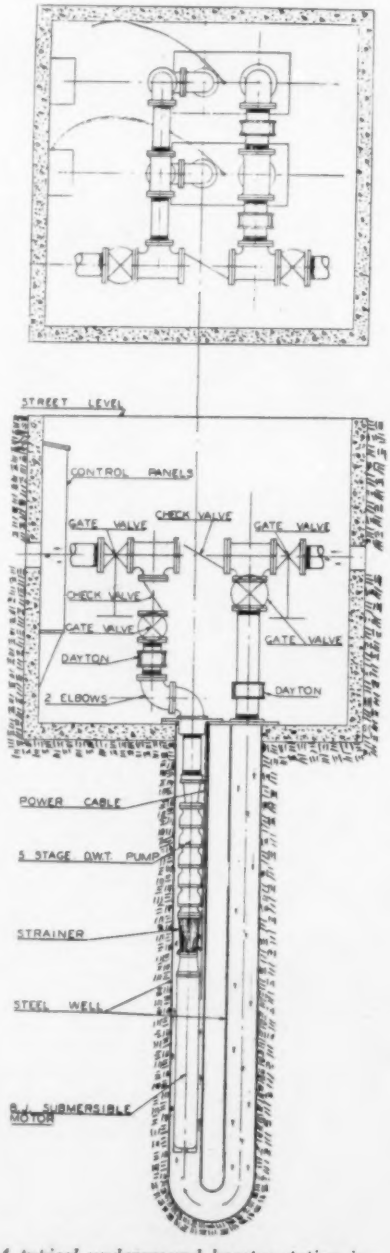
WITH large areas of the United States vulnerable to enemy bomber attacks, there has been considerable discussion of late of the protection of water-supply and booster stations. This article will discuss the advantages and disadvantages of two types of station, the underground and surface types.

According to *Army Ordnance*, Vol. XX, No. 116, p. 94, from which the accompanying diagram showing craters of demolition bombs is reproduced, the crater of a 4,000-pound bomb is 57 feet in diameter and 19 feet deep with respect to the original ground level. Such a bomb displaces 1,078 cubic yards of earth. Demolition bombs in use at the present time vary in weight from 100 to more than 4,000 pounds, and use delay fuses. The accompanying illustration shows the craters in ordinary ground from bombs of 100 to 4,000 pounds, with delay fuses.

Underground Stations

The first group of three illustrations shows the surface appearance of an underground booster station and two views underground. This station is designed to deliver 1,350 gpm at a total dynamic head of 760 feet, through approximately 8 miles of 16-inch-diameter steel line to an elevated storage tank. The pump house, or sump, is a reinforced concrete structure designed especially to safeguard the pumping equipment and insure delivery of an ample supply of water to an Army camp.

The substation shown in the rear of the ground elevation photograph receives 60-cycle, 3-phase electric current at 33,000 volts, and the transformers provide 440 volts for the pump motors. The second illustration shows the general arrangement underground, with the two pumping units and the suction and discharge piping. Each unit consists of a 200-hp electric motor operating at 3,550 rpm, direct-connected to a 4 x 6 x 10-inch 2-stage Byron Jackson centrifugal pump designed to deliver 675 gpm at a total head of 760 feet. The



A typical underground booster station installation below street level—may be built as deep as necessary to avoid effective bombing

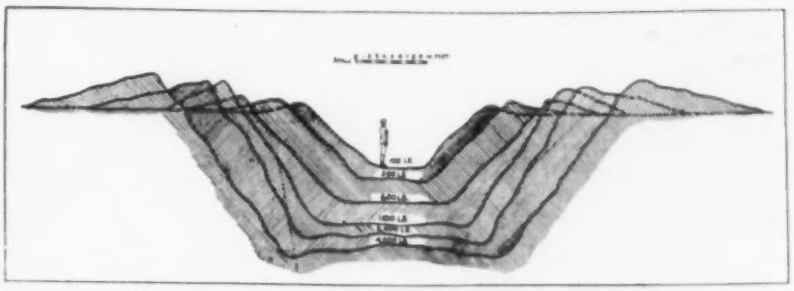
suction and discharge nozzles of the pumps are on the same side, simplifying the piping arrangements and appreciably reducing the floor space required. Dayton couplings were used to facilitate the installation of the piping and valves, and especially to eliminate any leverage stresses on the pumps. Because of the relatively high pressure of about 330 pounds, any movement of the discharge header is prevented by anchoring it to the heavily reinforced concrete pedestal.

Because the single door permitting entrance to the underground pumping room is normally closed and locked, louvers are provided in the door. When necessary, air is drawn through these louvers by an exhaust fan to maintain the proper temperature by suitable circulation. The third illustration in the first group shows the general arrangement of the switchboard, with entrance switches and the 200-hp auto transformer-type, reduced voltage, magnetic compensating starters, each equipped with separate hand-off-automatic selector switch. The panel nearest the door contains a bank of capacitor units to correct the power factor in serving the 200-hp standard squirrel-cage induction motors. The use of these capacitors results in a power cost saving of several dollars per day, because of the improved power factor. The same advantage could have been obtained by the use of synchronous motors, but the capacitor installation with squirrel-cage induction motors is better engineering and more economical for the various requirements involved.

One of the latest-type Sparling meters is mounted on the wall in the left foreground, and is used to record the total volume of water delivered as well as to indicate the rate of pumping.

It will be realized that in delivering 1,350 gpm through 8 miles of line at 330 pounds pressure,

suitable air-cushions are necessary to minimize water hammer or shock on the line. With this installation, three such cushions are used, one mounted vertically in the pump room shown in the rear of the third picture, a second on the line at about one-third of the total head, and the last cushion at about two-thirds of the total head. The cushions on the line are mounted horizontally and enclosed in a concrete sump for protection, with a manhole provided for inspection. Each air-cushion is 54 inches in diameter by 9 feet 6 inches long, with 1 1/16-inch shell thickness and 1¼-inch ellipsoidal heads. The cushions were fabricated in accordance with the A.S.M.E. Code for unfired pressure vessels, designed for a working pressure of 350 pounds with a hydrostatic test pressure of 700 pounds per square inch.



The diagram indicates craters produced by demolition bombs varying in weight from 100 to 4,000 pounds, using delay fuses in ordinary ground

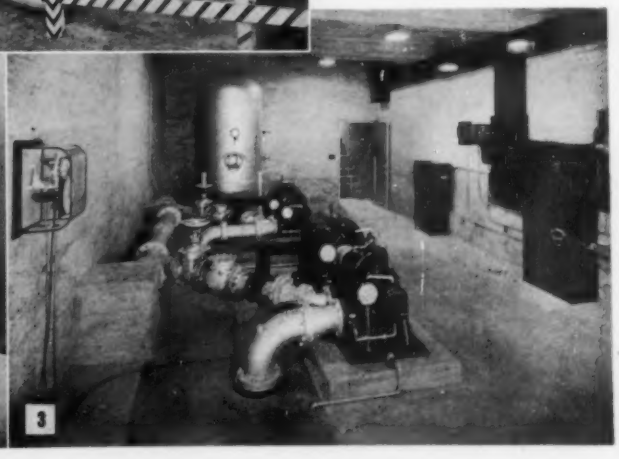
Surface Installations

Much thought and attention has been given by United States Army authorities and experienced engineers throughout the country to protecting and maintaining water supplies under existing war conditions. It is realized that any "surface" electric motor or pump can easily be damaged by a saboteur, and therefore engineers have recommended that older-type pumping units be installed underground for greater safety. Such a plan, even though helpful, is expensive and subject to some shortcomings, such as gas explosion, rupture of water lines and flooding, leaking stuffing boxes, necessary air circulation, and advisability of an attendant at all times. With priorities daily becoming more severe, even in a critical emergency it may be impossible to secure the replacement of any part of a damaged motor or pump in a reasonable time.

With these various factors in mind, it is interesting to analyze the advantages of an installation such as that shown in the second group of illustrations. The Byron Jackson 100-hp submersible motor and 12-inch diameter 6-stage bowl assembly are safely located at the bottom of 200 feet of 8-inch standard pipe column in a 16-inch diameter well. The unit serves both as a well pump and a booster unit, delivering 800 gpm of water against a total head of 340 feet into a reservoir; 160 feet is lift to the surface,

A typical underground booster station: at right, the surface appearance

Below—Two views, in opposite directions, of the underground pump room with electric control panels, meter and piping



A surface installation in Los Angeles, Calif.

and 180 feet is the head above the collar of the well.

It is obvious that it would be impossible to effectively bomb this pumping unit, and any damage to the surface piping, valves, fittings, air cushion and sand trap, could be repaired in a very short time. A study of the accompanying plan and elevation drawing will clarify the details. After leaving the well surface elbow, the water passes through an 8-inch Neptune meter and thence to the 4 x 16-foot ASME Code steel tank, serving as an air cushion and a sand trap. The 8-inch tilting disk Chapman check valve has operated very successfully in connection with a special column check valve in the well, located just above the pump bowls. Inasmuch as the well is new, this latter check valve is used to prevent the column water from running back into the well and tending to cause sand troubles. However, some sand is being pumped, and this is effectively eliminated by the surface sand trap, which is provided with a drain line.

Routine pumping includes complete draining of the sand-trap tank each day, with air at atmospheric pressure admitted through the 2-inch check valve. The pump is started with the tank serving as an air cushion, but all the air is eliminated in a comparatively short period through the air release valve, which automatically closes when the tank is full of water. For various reasons, it is desirable that air shall not be delivered into the distribution system. Therefore, the tank is so designed that the air at atmospheric pressure is compressed to an elevation just above the discharge line when the pressure reaches 78 pounds, or 180 feet, required to open the Chapman check valve and deliver water into the system. The drain line is provided with suitable gate valves so the sand-trap tank can be completely by-passed if any emergency should necessitate this procedure.

Details of the submersible-type outdoor starting panel are clearly shown, including the pothead, at the end of the power cable leading from the starter to the motor down in the well. A Byron Jackson depth gage is mounted at the bottom of the panel and connected to the well through copper tubing. This gage is constructed with a movable dial which is adjusted to the known length of the detector or air line in the well. By using a common tire or bicycle pump to introduce air in the line and force the water out, the gage then indicates the correct distance in feet from the water surface to center line of gage.

A second unit of substantially the same arrangement, also located in Los Angeles, consists of a 100-hp submersible unit, delivering 700 gpm with a lift to the surface of 150 feet and an additional boost to the reservoir of 330 feet, or a total head of 480 feet. Both of these pumping plants were designed and the installation made under the personal supervision of Clyde L. Mowder, Chief Engineer for the Investment Water Corporation, Los Angeles, California, owner and operator of the plants.

HOW WE ARE SPENDING THE DEFENSE DOLLAR
ORDNANCE (INCLUDING NAVAL ORDNANCE) 23 CENTS
AIRPLANES, ENGINES, PARTS, ETC. 17 CENTS
NAVAL SHIPS AND PARTS 13 CENTS
INDUSTRIAL FACILITIES 11 CENTS
STOCKPILES, OTHER EQUIP., ETC.
POSTS, DEPOTS, FORTIFICATIONS
PAY, ETC. (ARMED FORCES) •
OTHER MUNITIONS
MERCHANT SHIPS AND PARTS
(OTHER DEFENSE AGENCIES) •
HOUSING
THIS CHART SHOWS HOW THE DEFENSE DOLLAR is being spent. It is based upon a proportional breakdown of $71,100,000,000 appropriated and proposed for national defense as of November 30, 1941. This includes $60,000,000,000 voted for defense by Congress, including $13,000,000,000 for Lend-Lease purposes, plus commitments by the Reconstruction Finance Corporation and subsidiaries of $4,000,000,000, and additional sums totaling $7,100,000,000 requested by the President in recent messages to Congress.
• PAY, SUBSISTENCE, TRAVEL, AND MISC.

Chart released December 23, 1941, by the office for Emergency Management, Washington, D. C.

Wire Fence Protects Washington Water Supply

Seven-foot Fence Topped with Three-strand Barbed Wire an Effective Discourager to Subversive Acts

A STRONG wire fence, 9 feet high, to surround the vital parts of the water-supply system of the District of Columbia and to protect it against any attempt at sabotage, was started July 1, 1941, and will be completed about March 1, 1942, at a total cost of about $120,000. Under the sponsorship of the U. S. Engineer Department, upon which rests the responsibility of furnishing and maintaining Washington's water supply, WPA workmen are putting up more than 9 miles of chain-link fence, around six reservoir areas, several pump stations, valve controls and exposed conduits.

The main fence is 7 feet high, of No. 6 gage chain-link wire, strung on steel posts set in concrete. Along the top are three strands of barbed wire 2 feet high. All the wire used is of sufficient hardness to resist the cutting action of any but the largest tools.

One of the most vulnerable points in Washington's water system, from a standpoint of possible sabotage, is the Cabin John bridge on Conduit Road, so-called because it follows roughly the path of the conduit which brings raw water from the intake on the Potomac River, several miles above Washington, to the Dalecarlia reservoir, the largest in the water system of the nation's capital.

Cabin John bridge traverses a deep ravine, at the bottom of which is a small stream. The stone arches not only support the vehicular roadway, but in them is built a part of the conduit itself, through which a great part of the Washington water supply flows. Paralleling the bridge, but at a level about half-way between the bridge and the bottom of the ravine, is another concrete conduit, which lies exposed for several feet between the sides of the ravine.

Elaborate precautions have been taken to safeguard this vital spot in the water system. Speed is restricted on the narrow structure, which is brilliantly floodlighted at night and is constantly under the surveillance of armed guards. The new fence, starting from both sides of each bridge approach, extends down the sides of the ravine and into the stream, isolating both conduits from any intruder approaching them from the sides.

The largest area fenced is the Dalecarlia reservoir, where raw water is stored. This required 25,166 linear feet of wire fencing. McMillan reservoir, in another part of the city, will require 9,380 feet. Georgetown reservoir, where a treatment plant with settling basins is located, required 7,090 feet. Smaller reservoirs, various pump stations, towers, and exposed valve controls will require sufficient wire to bring the total to 50,500 feet.

The constant patrol of the fences will be the duty of police in the employ of the Corps of Engineers, who believe that this system of protection will guard the national capital's water supply adequately against any form of sabotage.

Installing wire fence in Washington, D. C., to aid in the protection of vital links of the water supply

Government Creates War Insurance Corporation

Jesse Jones, Federal Loan Administrator, announces that with the approval of the President, the Reconstruction Finance Corporation has created the War Insurance Corporation, with a capital of $100,000,000, to provide reasonable protection against losses resulting from enemy attacks which may be sustained by owners of property in Continental United States through damage to, or destruction of, buildings, structures, and personal property, including goods, growing crops, and orchards.

Pending completion of details, any such losses will be protected from Dec. 13, 1941, up to a total of $100,000,000.

Accounts, bills, currency, debts, evidences of debt, money, notes, securities, paintings, and other objects of art will not be covered.

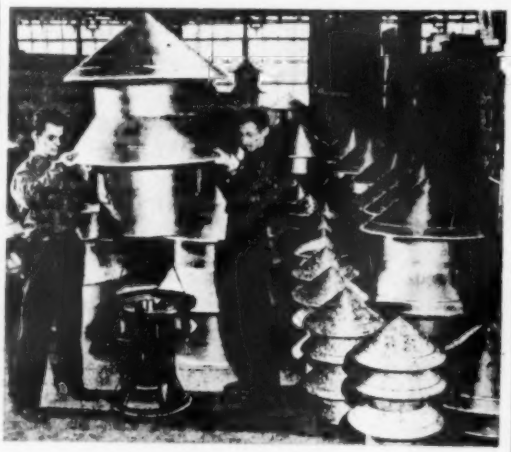
For the time being, no premium will be charged for this protection and no declaration or reports required, unless there is a loss.

Sirens for Air-Raids and Other Warnings

THE lack of real information on the subject of air-raid signals was illustrated in the recent tests in New York City, where the public had been warned not to be startled by the blasts they should hear at 4:15 P.M. on Wednesday, December 17. To most people there were no blasts, though the tests were held and were important in showing the difficulties in providing mass warning in a large city. Steam whistles can be built of 500-hp capacity and 1,000 pounds steam pressure. In smaller places, the problem is correspondingly simpler.

THE AMERICAN CITY *presents these two pages of letters from manufacturers who are familiar with the qualities and performance of sirens and signals for war alarm purposes.*

Making Air Raid Sirens in City



[TRIBUNE Photo.]

Anthony Paskus (left) and Charles Standinger putting weather proof housing on power siren in plant of Federal Electric company.

Raid Sirens Get Approval

Keenan Favors 60 at Fire Houses Throughout Newark

Public Safety Director Keenan yesterday decided the best method of notifying Newarkers of air raids is by installing 60 two-horsepower sirens.

At $200 each the sirens will be about $10,000 cheaper than the proposed amplification system Boston is installing. After tests Sunday Keenan expressed dissatisfaction with the amplifiers. He rode all over Newark with a reception testing machine trying to gauge the sound from devices atop the Swift Building in Port Newark.

In many places the testing machine failed to register sounds. In others they were so faint as to be useless.

Keenan told his departmental engineers he wanted something cheaper and noisier than the devices tested. He pointed out the

Make 445 a Day

Air raid warning sirens at the rate of 445 a day are being turned out by the signal division of the Federal Electric company, Inc., 8700 State street. They range in size from portable hand operated sirens weighing a little over four pounds, to the five foot high, 525 pound warning signal which at the touch of a button will send an eerie wail more than two miles.

According to W. W. Scott, general manager of the signal division, the Office of Production Management is making necessary arrangements to insure a steady flow of material—secondary aluminum, steel, iron, and copper wire—to maintain the rate of production, which can be tripled if necessary. Most of the sirens now are being shipped to the east and west coasts and to the Canadian west coast. Some also are being sent to inland cities.

Scott estimated that between 500 and 600 sirens would be necessary to completely equip Chicago, at an estimated cost of $178,000.

The illustrated newspaper story above is from the Chicago Daily Tribune *of December 23, 1941; the clipping at left is from the* Newark (N. J.) Evening News *of about the same date. (The Federal Electric Co., Chicago, Ill., offers air-raid sirens of ½-hp to 7½-hp, having estimated ranges of 1/3 to 2 miles in an area free of obstructions and high noise levels.)*

Many Types of Sirens

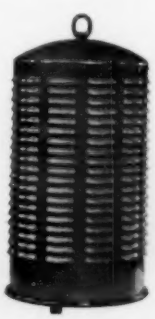
OUR PORTABLE, HAND-OPERATED SIREN, shown here, projects a volume of more than 100 decibals within two seconds, and has many uses for guards, air-raid and fire wardens, or in mills, on factory buildings, or wherever a type of siren is required that will operate efficiently without electric or mechanical power. Thousands of these have been delivered to our Allies.

For factories requiring a signal for indoor use yet not desiring a siren, we recommend a code signal unit having a loud, raucous air blast which can be heard above machinery noise.

For directional sirens in small communities, for air-raid and fire warnings, for railroad yards, docks, warehouses; in fact, wherever a weatherproof siren is desired for outside use, we recommend Model 35. For the same purposes, where a non-directional siren is desired, we have two models. For large-city use, we recommend the other siren shown here. It has a hook for raising it to the tops of buildings, and the base is equipped with three lugs drilled for 2½-inch pipe. Our 2-hp. unit, with average wind velocity in the wide open spaces, should be heard 2 to 3½ miles. That same siren in the midst of tall buildings, might not be heard any more clearly than a 5-hp siren.

During the first World War, we produced 90 per cent of the steel helmets worn by the armed forces, and we are preparing to produce helmets which may be required by air-raid and fire wardens, and police guards. We have submitted to the proper authorities a black-out shield for traffic-signal lenses. It is a piece of circular metal in which two slits have been made so as to withhold unnecessary traffic light during a blackout.

E. T. H. HUTCHINSON,
The Sparks-Withington Company,
Jackson, Mich.



Left: Portable Hand-Operated Model 100

Right: Model 37 for use on buildings. The Sparks-Withington Company

Distinctive Bells

FOR AIR-RAID PROTECTIVE SIGNALING FACILITIES, we recommend distinctive sounding vibrating horns or, where preferable, 10-inch vibrating bells to warn the occupants of a building of an air raid. For interior evacuation signals, the use of present fire-alarm or program signaling facilities should not be encouraged except where the code transmitted is sufficiently distinctive to apprise the occupant of the definite nature of the alarm.

Everything should be done to remove the element of fear or panic when an evacuation signal or call to station sounds. For this reason it might be in order to stress the desirability of bells with a pleasing nonraucous sound where the noise level does not require horns or sirens.

We recommend local sources of supply such as electrical supply houses and jobbers, who, being distributors for various manufacturers, can coordinate these orders for best delivery.

N. H. MILLER,
Signal Division, The Holtzer-Cabot Electric Company, Boston, Mass.

Loud Electric Horn

WE MANUFACTURE THE SMALLER TYPE OF SIREN operated by a 1/3-hp motor, and the popular Kodaire electric horn having the characteristics of an air horn. We are selling the small siren and the Kodaire horn all over the country for air-raid alarm purposes. Each of these two units may be heard over a radius of approximately one mile. The audibility of any signal device depends on obstacles in the path of sound. In New York, for instance, effective results cannot very well be obtained if sirens are mounted on some of the very high buildings because there are so many high buildings and all of them are erected along side each other so that a considerable amount of sound is completely lost. You will find a big difference out in the open country and even in the residential district such as in Brooklyn, the Bronx, etc.

As to a distinctive sound, the people in New York, for instance, are accustomed to hearing various types of sirens on the streets, as on ambulances, police scout cars, fire engines. The writer's recommendation would be to install very large sirens throughout the city, say the 5- or 7½-hp type, and provide the proper automatic control panels which will raise and lower the tone of the sirens and give a high- and low-pitched sound at regular intervals. We do not have anything to offer along this line.

Air horns are distinctive in tone. The type with the compressed-air tanks are the best for long distances, although there are many units now sold with small compressed-air tanks and motors attached which may be heard up to two or three miles.

A. A. SCHUHLER,
Sales Manager, Schwarze Electric Company, Adrian, Mich.

Tested Public Alarm

EXISTING MUNICIPAL FIRE-ALARM CIRCUITS may be utilized for air-raid and other emergency alarms without impairing the fire service, and the Diaphone, used for more than 50 years as a public alarm for fire and other emergencies, is ideally adapted for all forms of public-alarm signaling in time of war. This alarm is electrically or manually operated. It is furnished with either a gasoline-engine-driven compressor or an electric-driven compressor, which makes it independent of electric utility current. Originally designed for fog signaling, it has a harsh penetrating tone.

THE GAMEWELL COMPANY,
Newton Upper Falls, Mass.

Gamewell Diaphone

Sirens for Towns

WE MANUFACTURE SIRENS mechanically or electrically operated and sirens driven by gas engines or steam. Steam-driven and electric-driven sirens should be installed 35 to 40 feet above ground level. In open ground and in still air, electric sirens can be heard from one to five miles, according to size; steam sirens three to seven miles. These distances do not apply to sirens installed under conditions encountered, for instance, in the city of New York where towering buildings muffle the sound in a small radius.

H. O. R. CO., INC.,
6-8-10 Broad Street, Stapleton, S. I., N. Y.

Steam Sirens

WE MANUFACTURE THE PILOT MARINE HORN for steamship service. It is the highest powered horn made and the range that the sound will cover is directly proportional to the steam pressure. On a typical steamship only 125 lbs. steam pressure is used and this will carry for about fifteen miles at sea, its frequency being controlled. Increasing the steam pressure to 700 or 800 lbs. would increase the range to forty or fifty miles at sea, without affecting its pitch (tone).

As the sound pitch that carries farthest is the low-frequency, air-raid service requires low frequency horns if larger areas are to be covered. People expect siren alarms to sound like those they are accustomed to hear on fire engines. These sirens generate a high-frequency sound which has a very much more limited range, because the range of sound is directly related to its pitch. For a given amount of sound power low-frequency gives the maximum range, and the higher the frequency the shorter the range.

It at once becomes apparent that if such high-frequency sirens are to be installed to blanket an area, the number required might be large, as would also be the man hours required to install, maintain, and operate these sirens. Further, inasmuch as all the high-frequency sirens are electrically operated they would all go dead when the electric current failed, requiring auxiliary power. Most of our horns are steam operated, and we are reconstructing the entire unit to make it suitable for air raid warnings.

The new model siren will have a distinctive, fluctuating, low-pitched, deep tone and it will not be subject to confusion with any other sound in the city. Ambulances and fire engines can operate in their usual manner once the public knows the air raid warning sound to listen for.

JOHN G. DEEGAN,
Pilot Marine Corp., New York City.

Chime Whistles

THE DISTANCE at which any type of whistle can be heard is subject to geographical and climatic conditions. A number of cities on both the east and west coats have already purchased our material to be used as air-raid alarms, among them Los Angeles, San Francisco, Portland, Seattle, Boston, New York, and various others.

WILLIAM SMALL,
Vice-President, J. E. Lonergan Company.

Above, Schwarze Electric Air Blast; at Left, Lonergan Steam Chime Whistle.

Excess Condemnation as an Aid to Rehabilitation

A Successful Experiment in Practical Democracy

By ELISABETH M. HERLIHY
Chairman, Massachusetts State Planning Board

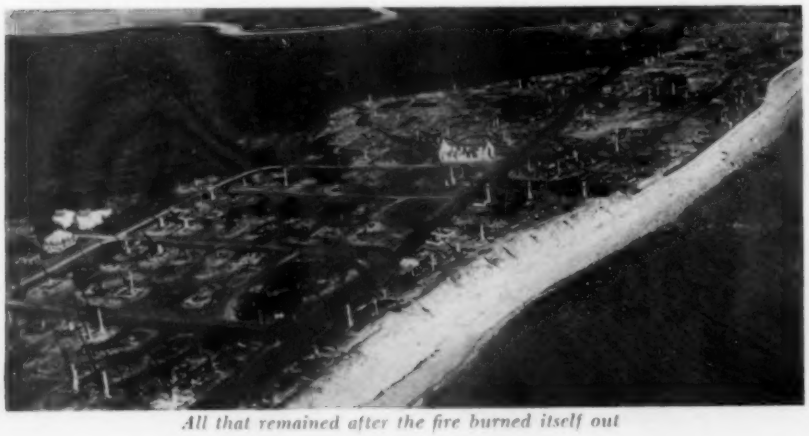
THE December, 1940, issue of THE AMERICAN CITY carried the first part of an interesting and informative article on "Excess Condemnation in Law and in Practice," by H. R. Briggs and Ann R. McGinley. The second and concluding part by the same authors appeared in the January, 1941, issue.

While maintaining that the procedure which has come to be known as "excess condemnation" is, in fact, neither "excess" nor "condemnation," but rather the practice of acquiring land in addition to that physically needed for an improvement, the authors proceed to trace the history and development of the movement throughout this country, defining certain objectives against which the attempts made in the various states are measured, and the legal obstacles encountered; and concluding on the somewhat negative note that "marginal acquisition of any great extent is fraught with risk, and that recoupment acquisition becomes subject to unfavorable legal action."

Nevertheless, these two articles afford a splendid setting for the drama enacted a few months ago in the Ocean Bluff section of the town of Marshfield. The town itself is in the so-called "South Shore" section of Massachusetts, lying approximately 35 miles south of Boston. The total population, according to the 1940 census, is just under 2,500, or a figure that has practically doubled in the last 20 years. Historically speaking, the town traces its origin back to 1632, when it was settled by colonists who came over on the Mayflower. Governor Winslow of Plymouth Colony lived in the settlement as early as 1640, while Daniel Webster found there rest and refreshment in his later years, and eventually his final resting place. While primarily an agricultural community, with strawberries and cranberries the most important crops, in recent years the beauty of its coastline and it frontage of ocean beach, closely bordered by gently rolling hills stretching away to the hinterland, have attracted summer residents and tourists in ever increasing numbers, until today they must be looked upon as a major element in the economic life of the community.

COURTESY OF FAIRCHILD AERIAL SURVEYS

Aerial view of Ocean Bluff before the fire, indicating by broad white line the extent of area burned, and by dotted line the boundary of area taken for rehabilitation



All that remained after the fire burned itself out

The Ocean Bluff section, lying along the waterfront, was a self-contained little community harboring a summer population practically equivalent to the year-round population of the parent town. Here on Monday, April 21, 1941, a raging fire wiped out almost the entire development in three short hours, with a resultant fire loss in excess of $1,000,000. A hotel casino, post office, church, 12 stores, 439 houses and cottages, and 96 garages were completely destroyed. Fortunately, most of the houses were

built for summer use and relatively few were occupied at the time of the fire, a fact which helped to keep the economic loss at a minimum. Less than 10 per cent were year-round residences of local people.

How the Rehabilitation Committees Functioned

The Selectmen of the town immediately rose to the task of rehabilitation. It must be borne in mind that the fire occurred in the early spring, and naturally the property owners were anxious to rebuild promptly in order that they should not be deprived of the full enjoyment of the summer season. The Selectmen, however, envisaged a reconstructed community, better planned, better regulated, and better controlled than that which had gone before. They accordingly established a Rehabilitation Committee of local citizens working through sub-committees on Planning, Building Law, Fire Protection, Zoning, Rebuilding, Health, Legal and Publicity. In the meantime, applications for rebuilding permits were held in abeyance until a definite rehabilitation program might be developed.

An offer of assistance from the State Planning Board met with immediate acceptance. A representative of the Board, with the assistance of two graduate students from the Massachusetts Institute of Technology, worked continuously in close cooperation with the several sub-commitees and with the various other agencies, federal, state and local, public and private.

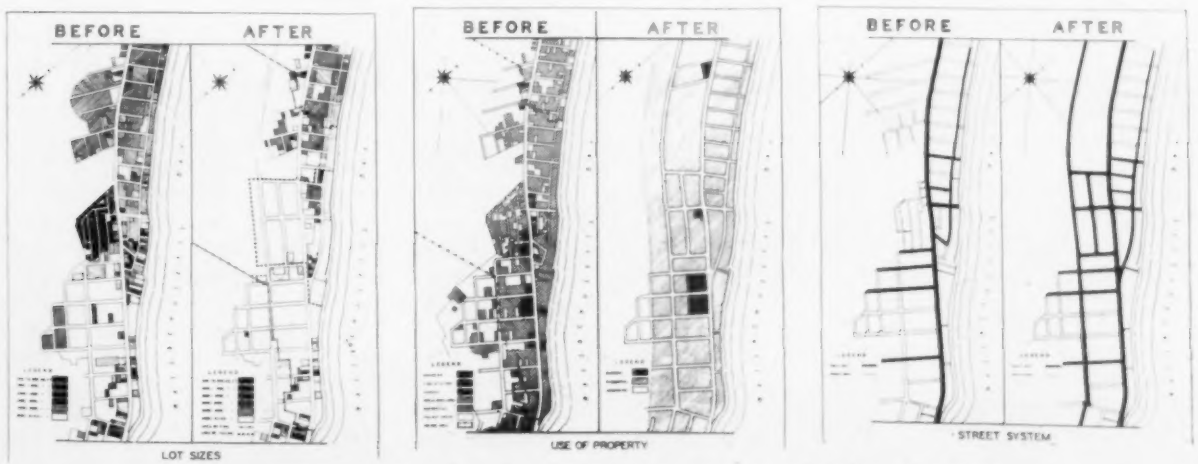
A complete revision of the existing partial zoning by-law was prepared by the Zoning Committee, one of its outstanding features being a minimum lot restriction of 5,000 sq. ft. The necessity for this restriction was emphasized by the fact that, although reasonable sized lots existed in certain portions of the burned area, there still remained approximately 26 acres where more than 50 per cent of the lots contained less than 2,000 sq. ft. and more than 75 per cent contained less than 3,000 sq. ft., many of them being called upon to support more than one dwelling unit. The smallest occupied lot in the area contained exactly 680 sq. ft. The enforcement of the 5,000-sq. ft. minimum, therefore, was predicated upon the ability of the community to consolidate the smaller holdings into larger units under some general rearrangement program.

The Building Law Committee, in cooperation with the Fire Protection Committee, prepared a simple but adequate building by-law for adoption by the town. The Rebuilding Committee supervised the clearing up and conditioning of the area and contacted all property owners to find out how many would be interested in rebuilding. The Health Committee enlisted the aid of the State Department of Public Health in making a survey of the drainage conditions in the devastated area. The Publicity Committee experienced no difficulty in finding an abundance of material of public interest and news value, while the Legal Committee acted in an advisory capacity toward all other groups.

A Big Replanning Job

There still remains the Planning Committee, and in its task is found the basic problem upon the solution of which depended in large measure the success or failure of the entire program. It was apparent from the beginning that a replanning job of major proportions was the only answer. The street pattern consisted of one main street traversing the entire area, closely paralleling the waterfront. From this main thoroughfare, Ocean Street, there stemmed a mass of narrow streets and private ways, unrelated and poorly constructed. The problem, therefore, outside of the regulatory measures that might be invoked through a building code, a zoning by-law, health and subdivision regulations, was a complete redesign of the physical pattern of the area, a new street layout, and a rearrangement of the lot boundaries involving nearly 350 private owners. Outside of voluntary agreement, there was but one procedure available and that was through the constitutional amendment adopted in 1911, i.e.,

"The Legislature may by special acts for the purpose of laying out, widening or relocating highways or streets, authorize the taking in fee by the Commonwealth, or by a county, city or town, of more land and property than are needed for the actual construction of such highway or street: provided, however, that the land and property authorized to be taken are specified in the act and are no more in extent than



Ocean Bluff before and after the fire, showing lot sizes, street system, and use of property

would be sufficient for suitable building lots on both sides of such highway or street, and after so much of the land or property has been appropriated for such highway or street as is needed therefor, may authorize the sale of the remainder for value with or without suitable restrictions."

or, in other words,—Excess Condemnation.

Legislature and Voters Act

Fortunately the Legislature was in session and the "special act" required by the constitutional amendment was promptly prepared and submitted for consideration. This special act, in the first place, authorized the officials of the town (i.e., the Selectmen) to lay out, widen, or relocate certain described highways and streets to be of such width as might be determined—in other words, the new street pattern. For the purposes of such street widenings, relocations, etc., the town officials were authorized to take by eminent domain or by purchase within certain limitations, more land and property than was required for the proposed improvement in order to provide suitable building lots abutting on the redesigned thoroughfares. Each parcel of property, to the number of 344, was "specified in the act" as required, together with the ownership, area and lot number as filed with the registry of deeds for the county.

After the appropriation of so much of this land and property as was needed for the construction, widening, and improvement of the streets and ways indicated, their junctions with each other, and connecting ways, the officials of the town were authorized to convey the remainder for value, with or without suitable restrictions. And, finally, for the purposes set forth in the act, the Town was authorized to borrow sums not exceeding in the aggregate $160,000 on a ten-year bond issue, such permission being safeguarded by the usual conditions as to debt limitation.

A hearing before the legislative committee was well attended; so much so that it was necessary to adjourn to larger quarters. The plan was explained by the Selectmen with the assistance of the State Planning Board, the County Engineer, and others who had been privileged to cooperate in its development. Opposition melted away in the face of a friendly, straightforward presentation of conditions as they had existed in the past and as proposed for the future, together with an expressed willingness to accept any better way if it could be found. The committee was interested to the point of making a personal visit to the area and eventually recommended favorable consideration of the measure. The bill was thereupon enacted by both branches of the Legislature and was approved by His Excellency the Governor on August 4, 1941. The final hurdle came on August 15 when, irrespective of an article in the press to the effect that "fireworks" were expected, the voters at a special town meeting by practically unanimous vote gave their approval to the method of procedure provided for in the act and, at the same time, adopted a revised zoning by-law, providing for a 5,000-foot minimum lot restriction, a building code, and subdivision regulations.

No better commentary upon the entire proceeding could be devised than the words of George Washington himself a century and a half ago when, pleading for a careful survey of the routes to the West, he urged that they be

> "accurately delineated and a correct and connected map of the whole presented to the public."

These things being done, he said,

> "I shall be mistaken if prejudice does not yield to fact, jealousy to candor and, finally, if reason and nature, thus aided, do not indicate what is right and proper to be done."

Hardly six months have elapsed since the acceptance of the act, but the work of rehabilitation is already well under way. The entire area has been drained, streets are being constructed in accordance with the new pattern, and the low areas are being filled in with gravel and graded with top soil. The legislative act requires that any person from whom was acquired not less than 60 per cent of a lot area, upon which a building was situated on January 1, 1940, shall have the right to purchase said lot within three months from the date on which the Town acquired title thereto for the price paid therefor by said town. The Selectmen are going further, however, and are giving all previous lot owners preference in the redesigned area. Before actual transfer of deeds, however, the entire property will be cleared through the Land Court so as to avoid any future complications. In addition, each deed will carry with it a price limitation on the buildings to be erected.

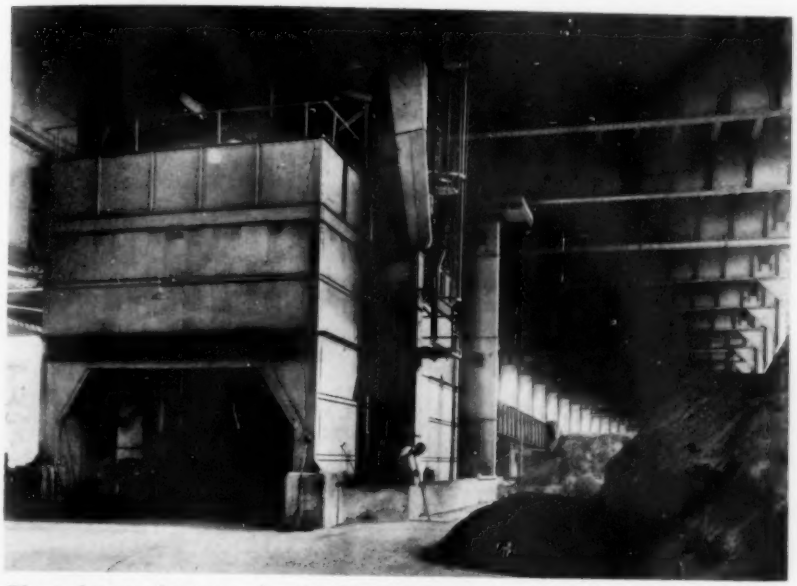
Selectmen Show Vision and Courage

No account of the project would be complete without paying tribute to the vision and courage displayed by the Selectmen. By far the easiest way would have been to reissue building permits on the old lot lines, and it required much initiative and tact on their part to withstand the immediate pressure, in order that a better future might be assured. The Selectmen in their efforts were ably seconded by the various rehabilitation committees, the members of which gave generously of their time and effort to the work of reconstruction. The same is true of the various cooperating groups, both public and private. And, finally, the owners of property themselves, even in the face of a possible sacrifice in addition to the loss already sustained, displayed a splendid manifestation of public spirit which was in no small measure responsible for the initial steps in the undertaking.

What the final outcome will be, no one but a prophet would venture to suggest, but it is nevertheless a fact that the steps thus far taken have amply justified themselves. There is no desire nor intention on the part of the Selectmen to show a financial profit in the transaction, but rather to produce a community that will afford better living conditions for its citizens. To that extent, at least, this present experiment in the application of the principles of excess condemnation differs from the attempts made in other sections of the country, however meritorious they may have been. The Ocean Bluff development is more than an experiment in the excess taking of land; it is an experiment in democracy by the people themselves through the use of their own money and property and for their own benefit. The fact that both are fundamentally right is the best guarantee of their permanence.

Removal of Ice and Snow on Delaware River Bridge

Method of Organizing Has Much of Interest and Value to Cities Located in the Great Northern Snow Belt



The steel storage hoppers and enclosed bucket elevators for loading cinder trucks beneath the Delaware River Bridge

WHEN the road surface on the great Delaware bridge which connects downtown Philadelphia, Pa., with Camden, N. J., becomes icy and slippery, it is imperative that cinders be spread over it with all possible dispatch so that needless accidents may be avoided. Especially is speed important in getting the grades on the approaches to the bridge covered. On a snowy, wintry day as many as 700 or 800 men may be engaged just shoveling and hauling away snow. W. Cunnane, foreman in charge of street cleaning on the bridge, says, "When I get a police radio signal that icy conditions require cinders, I want cinders to be up there on the bridge in three minutes." The result has been that the entire width and 1.8-mile length of the bridge proper can be covered in the short period of 21 minutes, using approximately 90 cubic yards of cinders.

To accomplish this, there must first be an adequate supply of cinders. These are stored in a fenced-in section underneath the Camden end of the bridge. The stockpile amounts to about 900 cubic yards, with an additional 320 cubic yards stored in two overhead steel hoppers, under which trucks drive to reclaim the cinders for delivery. For delivering the cinders to the overhead hoppers, there are two steel-encased, centrifugal-discharge, single-strand chain and malleable iron bucket Link-Belt elevators, each fitted with a short inclined belt conveyor at the top, to discharge the cinders to the center of the hoppers. Both elevators are about 38 feet high, and receive cinders through a grating over the mouth of the concrete boot at the foot of the elevator. The handling capacity is 15 and 20 tons of cinders per elevator and conveyor unit.

The short belt conveyors solved the problem of limited clearances under the bridge and above the storage hoppers. The floor of the bridge prevented using higher elevators, and if the cinders were not

(Concluded on page 78)

Rotary spreader attached to one of the 10-yard dump trucks for applying cinders on the Delaware River Bridge between Philadelphia, Pa., and Camden, N. J.

Tire-Rationing Regulations Recognize Municipal Needs

List of Vehicles Which May be Equipped With New Rubber Tires or Tubes

No certificate shall be issued unless the applicant for the certificate certifies that the tire or tube for which application is made is to be mounted:

(a) On a vehicle which is operated by a physician, surgeon, visiting nurse, or a veterinary, and which is used principally for professional services.

(b) On an ambulance.

(c) On a vehicle used exclusively for one or more of the following purposes:

1. To maintain fire fighting services;
2. To maintain necessary public police services;
3. To enforce such laws as relate specifically to the protection of public health and safety;
4. To maintain garbage disposal and other sanitation services;
5. To maintain mail services.

(d) On a vehicle, with a capacity of ten or more passengers, operated exclusively for one or more of the following purposes:

1. Transportation of passengers as part of the services rendered to the public by a regular transportation system;
2. Transportation of students and teachers to and from school;
3. Transportation of employees to or from any industrial or mining establishment or construction project, except when public transportation facilities are readily available.

(e) On a truck operated exclusively for one or more of the purposes stated in the preceding sections or for one or more of the following purposes:

1. Transportation of ice, and of fuel;
2. Transportation of material and equipment for the building and maintenance of public roads ;
3. Transportation of material and equipment for the construction and maintenance of public utilities;
4. Transportation of material and equipment for the construction and maintenance of production facilities;
5. Transportation of material and equipment for the construction of defense housing facilities and military and naval establishments;
6. Transportation essential to render roofing, plumbing, heating, and electrical repair services;
7. Transportation by any common carrier;
8. Transportation of waste and scrap materials;
9. Transportation of raw materials, semi-manufactured goods, and finished products, including farm products and foods, provided that no certificate shall be issued for a new tire or tube to be mounted on a truck used (a) for the transportation of commodities to the ultimate consumer for personal, family or household use; or (b) for transportation of materials for construction and maintenance except to the extent specifically provided by subsections 2, 3, 4, 5, and 6 of the section (e).

(f) On farm tractors or other farm implements, other than automobiles or trucks for the operation of which rubber tires or tubes are essential.

(g) On industrial, mining, and construction equipment other than automobiles or trucks for the operation of which rubber tires or tubes are essential.

Full details as to provisions and procedures for the operation of the program for rationing new tires and tubes are contained in a bulletin, "Tire Rationing Regulations," issued December 30, 1941, by the Office of Price Administration of The Office for Emergency Management, Washington, D. C.

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Town Fire Insurance Program Kept Up-to-Date

(*Continued from page 67*)

program instead of a miscellany of insurance policies. Our insurance survey commission first considered the pros and cons of self-insurance, deciding against this practice on the grounds of economy and financial and political risk to the town. Having decided to continue commercial insurance, the study was concentrated on the recoverable values of the town's properties. The Home Insurance Company was requested to make a survey because not only are its engineering facilities equal to the task, but also because its specialization in the insurance of municipally owned properties is well known. The findings and recommendations of this survey were then subjected to an independent analysis which was approved by the Irvington Board of Commissioners. The plan adopted was the 80 per cent coinsurance plan on a 3-year-term basis. The premium savings amounted to $1,600 for the term, or slightly over $500 per year.

It has been the Town's experience that the action we took is the way to avoid excessive premium cost. It is also the way to assure the proper protection of a city's public buildings. Finally, it is the way to assure the taxpayers that their town's insurance program is neither too much nor too thin, that it is scanned by the governing body, and is periodically checked.

Delaware Bridge

(*Continued from page 77*)

discharged to the center of the hoppers considerable hand-trimming would have been necessary.

Spreading Cinders

Actual spreading of the cinders on the bridge road surface is done by raising the front end of a dump-truck body to an angle of about 60 degrees, to let the cinders discharge by gravity to a Good Roads Machinery Co. cinder spreader, which is hitched to the back of the truck. A power-operated, conical rotary disk does the spreading, while the truck slowly travels over the icy surface.

About 90 per cent of the accidents due to slippery conditions have been eliminated by spreading the cinders mechanically instead of by hand as was done formerly when the supply could not be delivered to the bridge rapidly. The cinder hoppers and elevators make it possible for one truck after another to be loaded and rushed to the bridge. Each truck has 10 cubic yards capacity, and three are regularly used in this service. The men are ready at any time in the winter for quick action when the signal comes.

Photographs have been furnished by courtesy of Link-Belt Co., Chicago, Ill.

No Waste Gas

(*Continued from page 63*)

effluent from these beds is discharged into the Red River of the North, without secondary clarification.

Digesters and Sludge Disposal

The plant has two sludge digesters, a heated primary and an unheated secondary, each 55 feet in diameter, the secondary digester being equipped with a Dorr floating cover. Between the two is a sampling chamber with sampling spigots for four elevations in each digester. The primary digester is equipped with two agitators.

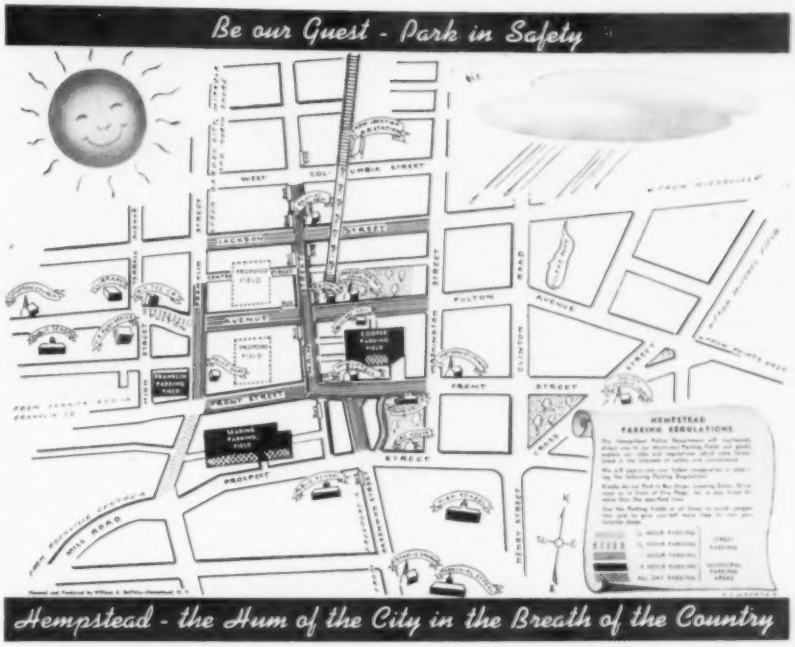
Digested sludge may be drawn by gravity to twelve 100 x 33-foot open sludge drying beds. The local Park Board uses some of the dried sludge on park lawns, hand-shoveling it to trucks to be hauled away. A local firm is planning to combine the dried sludge with a concentrate and sell it as a soil conditioner and fertilizer. Full details of the plan have not yet been completed.

The plant is operated under the direction of Fred C. Hagen, Commissioner of Water and Sewage, and W. P. Tarbell, City Engineer, with F. W. Pinney as superintendent.

Parking Facilities Relieve Traffic Congestion

"Be Our Guest—Park in Safety"

THIS map is taken from an attractive red, white, and blue folder, "Park and Shop with Ease," put out by the Village of Hempstead, Long Island, New York, which describes, for residents and visitors, location, entrances, and parking times of the three off-street municipal parking fields in this community of about 21,000 people. Cooper Field accommodates 700 cars; Searing Field, 375 cars; and Franklin Field, 200 cars. Two more fields to provide space for 400 and 300 automobiles, are being planned for the near future.



Well-Planned Subdivision Dearborn, Mich.

THE accompanying illustration shows completed units of Springwell Park, a well-planned neighborhood subdivision for 334 families in Dearborn, Michigan, laid out with cul-de-sac residential streets and minimum through routes, with a large shopping center providing parking space for more than 100 automobiles and spacious park and recreational areas—all convenient to schools and business. Required to meet certain architectural standards, dwelling units consist of single-family homes and two-story apartment houses. A theater and a recreation building are planned for the future.

The project was planned by the Ford Foundation, a non-profit, public-welfare corporation, organized for scientific, educational, and charitable purposes. Site layout and architects' drawings of the subdivision—which is now fully completed—are shown in a brief article on page 35 of the August, 1939, issue of THE AMERICAN CITY.

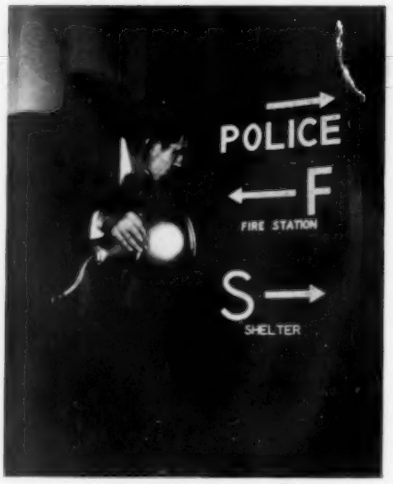
Award Jury for Bridge Design Competition

THE following Jury of Award has been appointed by the American Institute of Steel Construction to select the prize-winning designs in the Students' Annual Bridge Design Competition:

Lorimer Rich and Don E. Hatch, Architects; Henry C. Tammen of Howard, Needles, Tammen & Bergendoff, Consulting Engineers; Roger W. Sherman, Managing Editor of Architectural Record, all of New York City; and L. G. Sumner, Engineer of Bridges and Structures, Connecticut State Highway Department, Hartford, Connecticut.

This competition has been held annually during the past thirteen years. The designs judged to be the first, second, and third best will be awarded prizes of $200, $100, and $50 respectively. Certificates signed by the Jury of Award and by the officers of the Institute will be awarded to the prize winners and those whose designs are given honorable mention.

The Jury will meet at the headquarters of the Institute, 101 Park Avenue, New York City, on February 18 to make their selections.



S. G. Hibben, Westinghouse Wartime Lighting Specialist, demonstrating (extreme left) a 100-watt mercury ultraviolet black-light lamp exciting signs treated by fluorescent chemicals; (center) a pocket traffic-signal light (miner's cap lamp) made by Koehler Mfg. Co., Marlboro, Mass.; (above) glass by Dome Products Corp., Meriden, Conn., which, at a 45-degree angle, is opaque

New Blackout Technique

A NEW type of blackout in which camouflage, lights, and fluorescent chemicals will all play an important part in blacking out strategic objectives within a city rather than the whole city was discussed by S. G. Hibben, Westinghouse wartime lighting expert, before 2,000 state officials, air raid wardens, firemen, police, and FBI men in Bridgeport, Conn.

Long-wave ultraviolet light and fluorescent and phosphorescent chemicals will give air raid wardens and police new tools for safety in blackouts. Hydrants, sidewalks, curbs, bomb shelters, motor cars, and clothing can be marked with chemical paints which glow brilliantly when irradiated by invisible ultraviolet rays. Many blackout signs in England are lighted by this method to show the way to shelters, hospitals, police and fire stations.

London's blackout is created by permanent shields and low wattage lamps which will have to remain for the duration of the war. The American blackout will be controlled from power stations and by police and civilian patrols. Thus cities suffering only infrequent raids will be able to return to normal lighting almost instantly after a raid.

Military experts expect American coastal cities to be susceptible to small but powerful "hit and run" air raids. Scattered enemy planes rather than mass formations may be made necessary by our wide sea-patrolled areas. Our plans are aimed at guarding against swift raids which would attempt to cripple specific life lines of a city, instead of spreading bombs at random.

New Anti-Sabotage Light

A NEW GENERAL ELECTRIC UNIT designed for use in protective fence-lighting systems uses a Fresnel-type heat-resisting lens to produce a wide horizontal spread of light and a relatively narrow vertical beam. The reflector for the unit is made of chromium-plated copper. Lens and reflector are assembled in a sheet-steel housing. The complete luminaire is available in series or multiple types for a maximum of 6,000-lumen series or 300-watt multiple lamps. A special bracket enables the unit to be adjusted in the horizontal and vertical planes.

Anti-Sabotage Light

At left: Here is one of New York City's 12 new Mack pumping engines going up Fort George Hill—2,000 feet of 9.8 per cent grade. The man on the running board is a Fire Department inspector. New York now has 58 Macks

Organization for Wartime Protection of Health and Sanitary Facilities

MEMBERS of the National Technological Civil Protection Committee, appointed by the Secretary of War in January, 1941, have agreed to act also as an Advisory Board on Sanitary and Public Health Engineering to the Medical Division of the Office of Civilian Defense. The committee, which represents the major engineering and related societies, includes:

Walter D. Binger, New York, American Society of Civil Engineers, Chairman.

W. H. Carrier, Syracuse, N. Y., American Society of Heating and Ventilating Engineers.

Frederick G. Frost, New York, American Institute of Architects.

E. M. Hastings, Richmond, Virginia, American Railway Engineering Association.

Harry E. Jordan, New York, American Water Works Association.

W. Cullen Morris, New York, American Gas Association.

John C. Parker, New York, American Institute of Electrical Engineers.

Arthur B. Ray, New York, American Institute of Chemical Engineers.

Scott Turner, New York, American Institute of Mining and Metallurgical Engineers.

James L. Walsh, New York, American Society of Mechanical Engineers.

Abel Wolman, Baltimore, American Public Health Association.

The Office of Civilian Defense will have a contact member on this committee, as does the War Department. Ralph E. Tarbett, Senior Sanitary Engineer, U. S. Public Health Service, who has been assigned as chief sanitary engineer of the Medical Division of the Office of Civilian Defense with headquarters in the Washington office, will be the contact member for the Office of Civilian Defense.

Regional sanitary engineers are being appointed by the Medical Division of the Office of Civilian Defense to work through State Defense Councils with State health departments in planning defense against belligerent action. Most important of their immediate duties will be to promote development of protective measures for public water supplies, which may be subject to destructive enemy action. The engineers will also consult with health authorities on such matters as emergency maintenance of sewerage, sanitary facilities, garbage disposal, protection of food and milk supplies in the event of a disaster.

Two regional sanitary engineers are already on duty. Mr. Gordon E. McCallum, sanitary engineer, U. S. Public Health Service, has been commissioned in the Public Health Service Reserve and assigned to the Third Civilian Defense Region (Pennsylvania, Maryland, District of Columbia and Virginia) plus West Virginia and Ohio. Mr. McCallum is stationed in Washington. Mr. John H. Brewster, at various times sanitary engineer for the American Waterworks and Electric Company and for the New York and Indiana State health departments, and recently a private consultant in Troy, New York, has also been appointed a sanitary engineer in the Reserve of the Public Health Service and assigned to the First and Second Regions (New York, New Jersey, Delaware and the New England States).

• • • —

Tree Sprayers for Fire-Fighting

A PLAN designed to help protect American cities against possible fire blitzes of the kind suffered by English industrial communities last year has been placed before civilian defense officials in Washington by F. A. Bartlett, tree scientist and chairman of the board of the Bartlett Tree Expert Co.

The plan contemplates the registration of all privately owned power- and hand-spraying equipment in the country and is designed to make this equipment a part of the nation's fire-fighting apparatus in case of fires caused by enemy bombing raids.

A survey made recently by the Bartlett organization regarding the availability of such equipment indicates that there are some 210,000 power sprayers currently in operation and ready for use, with a total tank capacity in excess of 65,000,000 gallons. In addition, it is pointed out, there are also available some two to three million small stirrup and hand sprayers, with tank capacities of 3 to 10 gallons each, which also could be employed for this purpose.

Peacetime equipment that may be adapted to wartime protection

"If this equipment, owned for the most part by tree expert companies, orchardists, estate owners and park departments were made a part of and were available for emergency use by our regular fire fighting forces," said Mr. Bartlett, "I believe the total capacity of the nation's chemical fire fighting equipment would be increased at least five or six times."

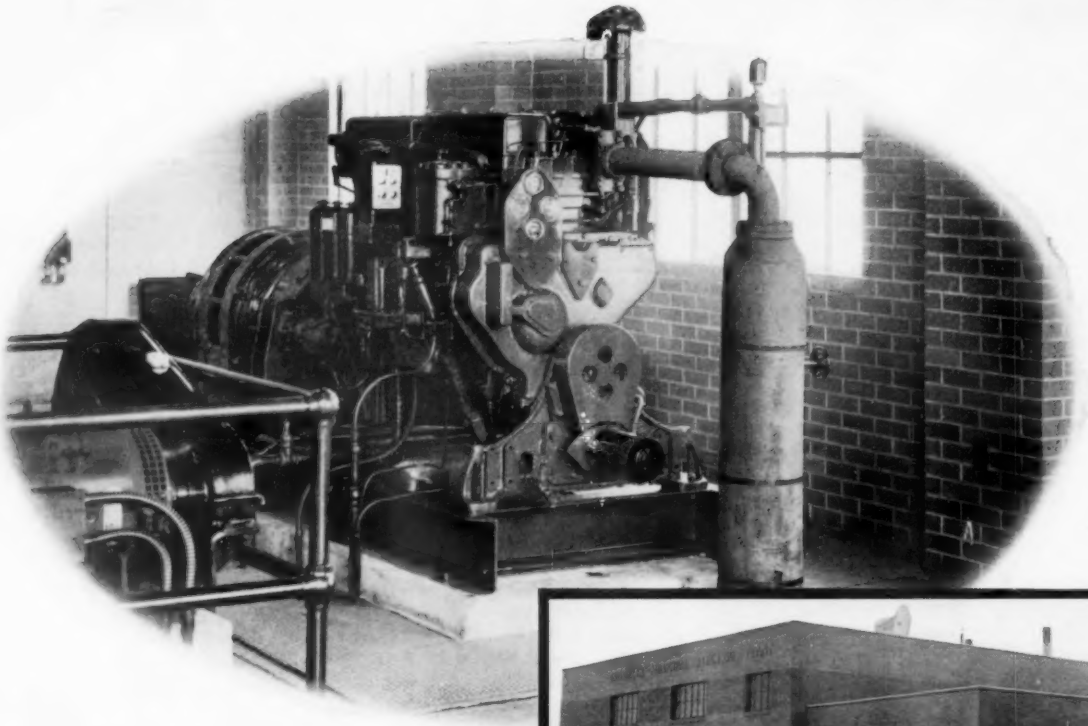
The plan currently is receiving wide recognition and study by civilian defense officials and by a number of cities and communities in the eastern section of the country along the Atlantic seaboard. It is reported to be currently under consideration for inclusion in the national defense picture by the office of Brig. Gen. L. D. Gasser of the Office of Civilian Defense in Washington, D. C. It likewise was recently approved by New York City's fire commissioner, Patrick J. Walsh. Defense areas in such important centers as northern Delaware, Westchester County, N. Y., and Stamford, Conn., likewise have the plan under active consideration.

Under the plan submitted to the office of Gen. Gasser at Washington, surveys in every city and community would be made throughout the country to register all available power- and hand-spraying equipment. These surveys could be made, Mr. Bartlett points out, through the offices of local fire departments and air-raid wardens. Such equipment, together with crews and machines, would then be placed upon a voluntary call basis to aid the nation's regular fire-fighting forces.

Mr. Bartlett has offered his own personal services and that of his organization to the Office of Civilian Defense in helping place the plan in operation on a national scale.

ARTHUR L. GREENE.

HANDYMAN ON THE NIGHT SHIFT



• This "Caterpillar" Diesel D13000 Engine, driving a 75-kw. generator, furnishes electricity during peak evening load and off-peak night load for the town of Brooklyn, Iowa.

• Municipal Electric Plant at Brooklyn, Iowa, where reserve "Caterpillar" Diesel Power is saving the taxpayers' money.

THE Brooklyn, Iowa, Municipal Electric Plant needed reliable auxiliary power for off-peak and overload hours. When they installed a "Caterpillar" Diesel Electric Set they had the answer—plus big savings in power cost.

This set generates 55 kilowatts per hour, using about 5½ gallons of 6-cent fuel. It is equipped with safety controls which shut off the engine in case of low oil pressure or high water temperature, and no attendant is needed.

Supt. G. H. Keedy says: "We are making a big saving on fuel and operating expense by having our 'Caterpillar' take care of our night off-peak load, plus having it in reserve for heavy, above-average loads."

Supplying all power on a full-time basis—supplying auxiliary power to increase plant efficiency—supplying stand-by power for emergencies—these are a few of the ways "Caterpillar" Diesel Power is serving municipalities. And in serving, it's also *saving*.

"Caterpillar" Diesel Engines and Electric Sets are built for long years of dependable work. Their excellent fuel system enables them to burn such extra-low-cost fuels as No. 3 domestic burner oil—cleanly and efficiently. Their rugged construction keeps maintenance cost at a minimum. And they are backed by the most complete and readily available parts-and-service facilities of their kind in the world.

If we know your specific power requirements, we'll be glad to estimate your possible savings with "Caterpillar" Diesel Power. See the nearest "Caterpillar" dealer or write us direct.

CATERPILLAR TRACTOR CO., PEORIA, ILL.

★ ★ ★ FOR VICTORY—*Our armed forces have first call on "Caterpillar" production. We thank customers who have suffered delivery delays by giving clear right-of-way to our Victory efforts.*

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Population Gains and Losses in 48 Comparable Metropolitan Areas

FINAL tabulations of population gains and losses in the 140 areas of the United States, designated as metropolitan districts, were released recently by the Bureau of the Census. For THE AMERICAN CITY, the Bureau, on the basis of its published data, has divided these areas into four groups: (A) districts with identical areas and *with* change between central city or cities and outside part—41 in number; (B) districts with identical areas and *without* change between central city or cities and outside part—48 in number; (C*) districts with different areas and *with* change between central city or central city or cities and outside part—25 in number; (D*) districts with different areas and *without* change between central city or cities and outside part—20 in number; and (E) districts for which 1940 figures only are given, 1930 figures not being obtainable on a comparable basis—7 in number.

As group B is the only one for which strictly comparable figures are available (districts in which the central and outlying sections remained unchanged in area during the 10-year period) THE AMERICAN CITY has selected this group for the tabulation and analysis which follows:

Metropolitan District	Population 1940	Population 1930	% Change
ATLANTIC CITY, N. J.			
Central city	64,094	66,198	— 3.2
Rest of district	36,002	35,826	+ 0.5
AUGUSTA, GA.			
Central city	65,919	60,342	+ 9.2
Rest of district	21,890	17,089	+28.1
BINGHAMTON, N. Y.			
Central city	78,309	76,662	+2.1.0
Rest of district	66,847	53,343	+25.3
BRIDGEPORT, CONN.			
Central city	147,121	146,716	+ 0.3
Rest of district	69,500	57,253	+21.4
CHARLESTON, S. C.			
Central city	71,275	62,265	+14.5
Rest of district	27,436	17,495	+56.8
CHARLOTTE, N. C.			
Central city	100,899	82,675	+22.0
Rest of district	12,087	8,589	+40.7
CHATTANOOGA, TENN.			
Central city	128,163	119,798	+ 7.0
Rest of district	65,052	48,791	+33.3
COLUMBIA, S. C.			
Central city	62,396	51,581	+21.0
Rest of district	27,159	22,382	+21.3
DECATUR, ILL.			
Central city	50,305	57,510	+ 3.1
Rest of district	6,459	5,357	+20.6
DES MOINES, IOWA			
Central city	159,819	142,559	+12.1
Rest of district	24,154	18,404	+31.2
DULUTH-SUPERIOR, MINN.			
Central cities	136,201	137,576	— 1.0
Rest of district	20,897	17,814	+17.3
ERIE, PA.			
Central city	116,955	115,967	+ 0.9
Rest of district	17,084	13,850	+23.4
FALL RIVER-NEW BEDFORD, MASS.			
Central cities	225,769	227,871	— 0.9
Rest of district	46,879	45,184	+ 3.8
FLINT, MICH.			
Central city	151,543	156,492	— 3.2
Rest of district	37,011	23,447	+57.8
GALVESTON, TEXAS			
Central city	60,862	52,938	+15.0
Rest of district	10,815	5,363	+101.7
GRAND RAPIDS, MICH.			
Central city	164,292	168,592	— 2.6
Rest of district	45,581	38,562	+18.2
GREENSBORO, N. C.			
Central city	59,319	53,569	+10.7
Rest of district	13,736	9,900	+38.7
HARRISBURG, PA.			
Central city	83,893	80,339	+ 4.4
Rest of district	89,474	81,333	+10.0
JACKSON, MISS.			
Central city	62,107	48,282	+28.6
Rest of district	25,896	19,970	+29.7
JOHNSTOWN, PA.			
Central city	66,668	66,993	— 0.5
Rest of district	85,113	80,618	+ 5.6
KALAMAZOO, MICH.			
Central city	54,097	54,786	— 1.3
Rest of district	23,116	17,953	+28.8
KNOXVILLE, TENN.			
Central city	111,580	105,802	+ 5.5
Rest of district	40,249	29,912	+34.6
LANCASTER, PA.			
Central city	61,345	59,949	+ 2.3
Rest of district	70,682	63,207	+11.8
LANSING, MICH.			
Central city	78,753	78,397	+ 0.5
Rest of district	31,603	20,297	+55.7
LOUISVILLE, KY.			
Central city	319,077	307,745	+ 3.7
Rest of district	115,331	96,651	+19.3
MACON, GA.			
Central city	57,865	53,829	+ 7.5
Rest of district	16,965	13,398	+26.6
MANCHESTER, N. H.			
Central city	77,685	76,834	+ 1.1
Rest of district	4,247	3,839	+10.6
MINNEAPOLIS-ST. PAUL, MINN.			
Central cities	780,106	735,962	+ 6.0
Rest of district	130,971	96,296	+36.0
MONTGOMERY, ALA.			
Central city	78,084	66,079	+18.2
Rest of district	15,613	12,310	+26.8
NEW HAVEN, CONN.			
Central city	160,605	162,655	— 1.3
Rest of district	147,623	131,069	+12.6
NEW ORLEANS, LA.			
Central city	494,537	458,762	+ 7.8
Rest of district	45,493	36,115	+26.0
PORTLAND, ME.			
Central city	73,643	70,810	+ 4.0
Rest of district	32,923	29,064	+13.3
PROVIDENCE, R. I.			
Central city	253,504	252,981	+ 0.2
Rest of district	457,996	437,650	+ 4.6
RICHMOND, VA.			
Central city	193,042	182,929	+ 5.5
Rest of district	52,632	37,584	+40.0
ROANOKE, VA.			
Central city	69,287	69,206	+ 0.1
Rest of district	41,306	33,914	+21.8
SACRAMENTO, CALIF.			
Central city	105,958	93,750	+13.0
Rest of district	53,041	33,243	+59.5
SAGINAW-BAY CITY, MICH.			
Central cities	130,750	128,070	+ 2.1
Rest of district	22,638	16,577	+36.6
SCRANTON-WILKES-BARRE, PA.			
Central cities	226,640	230,059	— 1.5
Rest of district	402,941	422,253	— 4.6
SIOUX CITY, IOWA			
Central city	82,364	79,183	+ 4.0
Rest of district	5,427	4,592	+18.2
SOUTH BEND, IND.			
Central city	101,268	104,193	— 2.8
Rest of district	45,754	42,376	+ 8.0
SPOKANE, WASH.			
Central city	122,001	115,514	+ 5.6
Rest of district	19,369	13,284	+45.8
SPRINGFIELD, MO.			
Central city	61,238	57,527	+ 6.5
Rest of district	9,276	6,136	+51.2
TOPEKA, KANS.			
Central city	67,833	64,120	+ 5.8
Rest of district	9,916	7,559	+31.2
TRENTON, N. J.			
Central city	124,697	123,356	+ 1.1
Rest of district	75,431	66,863	+12.8
WATERBURY, CONN.			
Central city	99,314	99,902	— 0.6
Rest of district	45,508	40,673	+11.9
WINSTON-SALEM, N. C.			
Central city	79,815	75,274	+ 6.0
Rest of district	30,018	22,000	+36.4
WORCESTER, MASS.			
Central city	193,694	195,311	— 0.8
Rest of district	112,500	109,982	+ 2.3
YOUNGSTOWN, OHIO			
Central city	167,720	170,002	— 1.3
Rest of district	204,708	194,558	+ 5.2

* In the Census Bureau's tabulation, the New York-Northeastern New Jersey district is divided into two Divisions: Group C listing the New Jersey Division and Group D the New York Division.

In the 48 metropolitan districts covered by the foregoing table, 13 had a central city or combined central cities having a smaller population in 1940 than in 1930; the gains of 26 the remaining 9 gained from 12.1 to 28.6 per cent.

In these same districts only one of the outside areas showed a loss in population during the decade—and this loss was only 4.6 per cent. Eleven of these outside areas gained from 10 to 19.9 per cent; 12 gained from 20 to 29.9 per cent; and 17 gained 30 per cent or more. The highest record—a gain of 101.7 per cent—was made by the metropolitan area outside of the city of Galveston, the central city simultaneously gaining 15.0 per cent.

• • • —

Local Government and World War

A Tribute to the Municipal Authorities of Great Britain

"WE owe the survival of Britain, during these fateful times, in a large measure to the municipal authorities. . . . We owe it, too, to the new regional organizations which have been interposed as a link between the central government and the local authorities. . . . Much of the work of local authorities went unobserved because it was not desirable to tell the enemy what damage was done, what was not done, and how quickly it was repaired. . . . No notices of this were published in the newspapers lest the enemy raid the town again.

"Municipal authorities supervised the police and air-raid wardens, who watched the streets, the first air posts for casualties, the ambulances and hospital services, the burial of dead, the evacuation of women and children when necessary, the provisions for food, clothes and shelter for those bombed out, and the restoration of disrupted water, gas and electrical services.

"Local government in Great Britain never had such a glorious vindication as during these last nine months when the Nazis have descended upon our island in their most savage fury and attempted to blast the life out of it. . . .

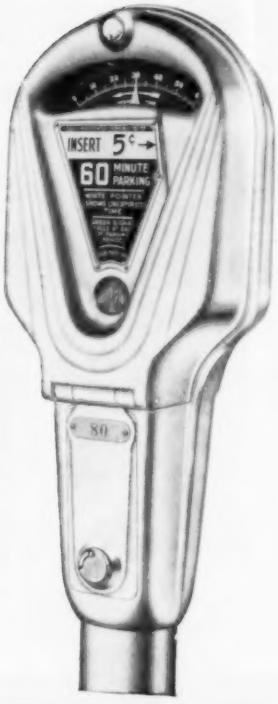
"The battered boroughs of Old Britain have dressed their wounds whilst they stood and fought. There is no more glorious page in the proud history of municipal government."

RIGHT HONORABLE MALCOLM MACDONALD,
British Minister to Canada.

—Quoted in *Greater Cleveland* for December 23, 1941.

ARMISTICE DAY BLIZZARD SETS ALL-TIME RECORD . .

. . . but Dual Automatic Meters came through with colors flying!



ON ARMISTICE DAY, 1940, Minneapolis suffered its worst storm in 50 years. But though the snow piled deep on city streets DUAL AUTOMATIC METERS were scarcely affected. They fully justified the technical test reports that engineers had made on Dual meters. On the basis of this grueling test, Minneapolis extended its metered area by ordering 400 additional meters. That other cities are following suit is evidenced by the fact that in 11 months in 1941 DUAL has received awards totalling more than 24,000 meters.

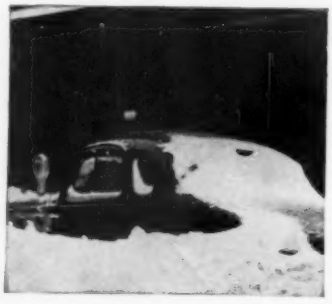


Photo Courtesy Mpls. Times Tribune

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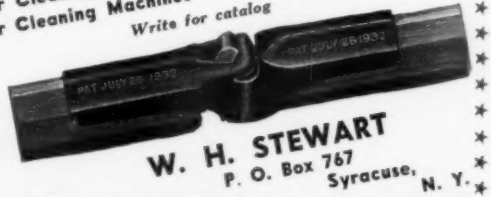

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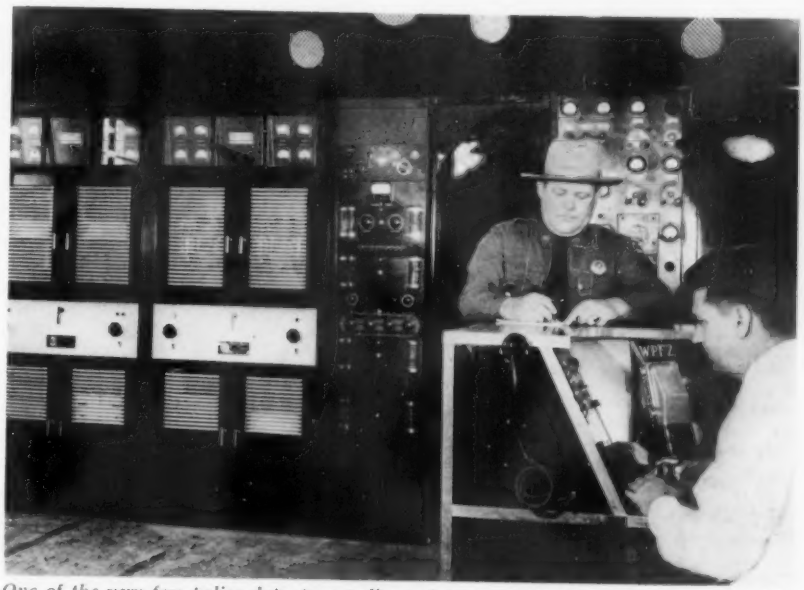
Police Radio in a Florida Hurricane

Hurricanes, tornadoes, earthquakes, and conflagrations are comparable with aerial bombardment. In such catastrophies, continuous contact between the authorities and the public is essential to coming through with least damage and highest morale. During a recent hurricane in Miami, with power lines down and telephone cut, all police cars were constantly in touch with headquarters and not a radio call was missed.

By H. M. Leighley



One of the very few police departments licensed to transmit at 1,000 watts. This RCA equipment was installed December 23, 1939. The picture shows entire transmitting and amplifying equipment and one end of the control desk. The speakers at top are, left to right: (1) inter-city for Jacksonville, Tampa, and other cities; (2) talk-back circuit from the cars; (3) monitor speaker enabling operators to receive bulletins from weather bureau or any other control point; (4) speaker connected with the public address system of the fire department connecting all fire stations.

I WAS in Miami on routine business when the radio stations first announced that there was a tropical disturbance. The weather bureau continued to send out notices and on Saturday morning, October 5, they announced that the center of the storm had been located about 250 miles southeast of the Bahamas, with winds of hurricane force at its center, and traveling in a northwesterly direction, at about 20 miles per hour.

Saturday afternoon storm warnings went out to small vessels in the area southeast of Miami. I got in touch with Lieutenant Ben Demby, who is in charge of Miami's police radio system which serves 220 city, county and state cars from Palm Beach to Key West. He granted me permission to stay at his station and observe the operation of his radio system.

Sunday afternoon the winds in Miami rose to 20-30 miles per hour and the storm center was reported heading straight for Miami, with the prediction that it would cross the Florida East Coast in the vicinity of Miami late Sunday night or early Monday morning. Things started humming at the station then, and all members of the radio staff were notified that they were on 24-hour duty.

One of the first things done was to anticipate the destruction of the telephone control lines between the transmitter and the control station. A short-wave transmitter-and-receiver was installed at the transmitter and another at the control station so that two-way communication between the transmitter and control station could be maintained, should the control-line service be disrupted. By means of this short-wave link, police headquarters could direct the operator at the station to send out the radio messages. If it had not been for this short-wave link, police headquarters would have had no communication with the transmitter, and the 1-kw station would have been valueless until the control lines could be repaired after the storm had passed.

Hourly reports were now being received from the weather bureau, and the Miami police-radio department relayed them to all other interested people such as the Red Cross offices, police departments in nearby cities, and to all police cars in southeast Florida. By means of a remote-control unit in the weather-bureau office, the chief of the bureau can broadcast his reports directly over the Miami police transmitter. These routine reports continued to go out until late Sunday afternoon, when it became evident that the hurricane's center would hit Miami.

Hurricane warnings were hoisted by the weather bureau and the staff of the Miami police-radio station, and the operators of the radio cars were assigned their permanent storm duties. Late Sunday night the wind began to blow in earnest, with velocities up to 50 miles per hour, and the barometer started falling rapidly. This police barometer provides some independence of the weather bureau, particularly in the final stages of a storm likely to interrupt telephone and teletype services. Anyone familiar with Florida hurricanes can watch the barometer and observe the direction and intensity of the winds and make a fairly accurate prediction of when and where the storm center will strike.

About 2 A. M. Monday the winds began reaching gale force. Flashes of fire in the sky indicated that the power lines were getting into trouble, and

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KARPARK KS Series

THE FINEST PARKING METER WE EVER MADE

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Coin box absolutely leak-proof.

Only meter with coin box in post—3/16" steel protection against theft.

Larger signal—better visibility.

Entire housing is completely leakproof.

Larger instruction plate—easy to read.

Functional design and smooth surfaces make excellent appearance on the street.

2½" ID (Inside Diameter) Post is more than twice as strong.

This Karpark meter, while utilizing the same basic time, power and coin mechanisms which have always made it the most dependable and accurate meter available, now has these exclusive features which unquestionably make it the best parking meter we ever made.

•

ALL KARPARK METERS are manufactured and sold under the patents of Vehicular Parking, Ltd.

•

Detailed information on the KS Series will be sent immediately on request. Address

THE KARPARK CORPORATION

1028 CONNECTICUT AVENUE, N. W. • • • WASHINGTON, D. C.

Lieutenant Demby started up his emergency power plant. This is a 10-kw gas-driven generator which can handle the full load of the station, lights, fans, transmitters, receivers. Exactly 20 minutes after Demby cut over from the Florida Power and Light supply to his own emergency unit, the darkening of the city lights showed that the city power supply had either failed or been intentionally cut off to reduce the fire hazard from falling wires. A final check was made on the short-wave link with police headquarters, and now *every wire in the city could have been blown down and Demby could still continue to give two-way radio service to all his cars.*

Another example of foresight was the fact that earlier in the evening Demby had obtained permission from the Federal Communications Commission to stay on 1,000-watt power throughout the night. Ordinarily municipal stations have to lower their power an hour before sunset from 1,000 to 500 watts in order to reduce interference from other stations on the same frequency.

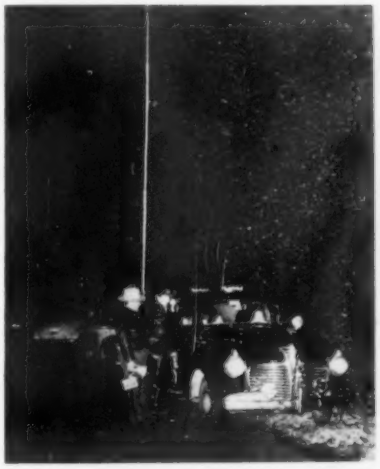
One of the main radio problems during such a storm is the antenna. The Miami antenna is a vertical radiator, 100 feet high, guyed to heavy cement anchor blocks; but experience has shown that no mast this high can withstand a Florida hurricane. By means of a stub mast attached to the vertical radiator, and a system of winches and steel cable, the mast can be lowered and a temporary wire antenna installed. While I did not check the exact time for the complete change-over, I do know that the new antenna was in operation in not more than 10 minutes, and the regular mast securely anchored. About 30 minutes later the winds had increased to such force and the rain had reached such severity that it would have been hazardous for the station crew to go outside the protection of the hurricane-proof building.

In Vital Emergency

Nothing more could be done. Demby and his crew were ready and the wisdom of months of careful planning and of money invested in the emergency equipment was proved. As predicted on the charts in Demby's office, the center of the storm passed over the city at 6 A. M. Monday. The wind reached a maximum velocity of 123 miles per hour and winds of 80 miles or more were recorded for nearly 5 hours. *Not a single radio call was missed, and all cars were constantly in communication with police headquarters.* By means of these radio-directed cars, all people were warned to get off the streets; and houses and stores were warned to board up. Next day the newspapers reported no serious personal injuries and no loss of life.

I was so impressed with the workings of this system that I wanted to pass along to other police departments the details of the equipment involved and the precautions taken to insure continuous service. The city of Miami has an RCA 1-kw station transmitter, remote-controlled, the control station being located at police headquarters and the transmitter located in outlying Moore Park. Lieutenant Demby's efficient handling of the problems created by the hurricane of October 6-8 began with the construction of a hurricane-proof building for the transmitting equipment. This building has walls 24 inches thick and a reinforced-concrete roof 8 inches thick. It is built on bed rock, and equipped with heavy storm shutters. It is the safest place in Miami during a severe hurricane.

Native coral blocks 6 feet long by 20 inches square used to build the walls of the Miami police radio station. The roof is one piece of concrete.



State Highway patrol and Lt. Ben Demby, Chief Operator of Communication's Division, City of Miami, alongside a Plymouth especially equipped with a 50-watt transmitter operating on both conventional and ultra-high frequency, and with the 35-foot antenna erected maintains communications over a 250-mile radius. This is the only city or state car licensed to operate on Coast Guard frequency, to give aid in hurricanes and other emergencies. This car is on Highway 30, 15 miles west of Vero Beach, 135 miles north of Miami on the Atlantic Coast in the Everglades. Lt. Demby is shown in actual communication with Miami police radio station at Moore Park.

Year's Report for Mt. Vernon's Parking Meters

COLLECTIONS FROM PARKING METERS in the first year of operation here totaled $35,978.26, it was announced by Public Safety Commissioner Frank B. Kurtz. Fifty-two collections were made between November 1, 1940, and October 31, 1941.

A breakdown of the figures showed the average weekly collection was $691.88, and the average monthly collection was $2,998.18.

The number of pennies deposited in the meters—1,025,336—was more than double the number of nickels—512,362; but pennies being what they are, the total—$10,253.36—was less than half the total in nickels—$25,618.10.

One person placed an accentuated value upon his parking time and deposited a $2.50 gold piece in a meter, but he got no more than the regulation amount for it, and he never claimed it.

One thousand and forty-three dimes also were deposited, for a total of $104.30. These also rest in the city treasury, and represent a complete waste by the parkers who deposited them, for dimes make no impression on the meters—not even 12 minutes worth.

—*The Daily Argus*, Mt. Vernon, N. Y., on November 4, 1941.

Announcing A New Refractolux Luminaire

TYPE SG-10

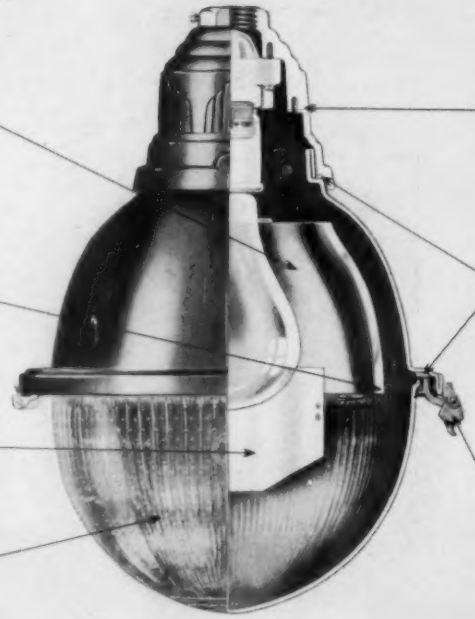
MORE LIGHT PER UNIT

SG-10 reflector is silvered glass—the most efficient reflecting material known. Cushion mounted to absorb shock and protected by porcelain enameled steel housing.

Reflector extends down into the globe or refractor to utilize light normally absorbed and scattered by globe holding devices.

Porcelain enameled steel shield redirects light from the house side of the street.

Refractor controls lateral light from the lamp and reflector and redirects it to the most useful zone on the street.



EASY MAINTENANCE

Two sets of lugs with pre-tapped holes accommodate lamp holders for either series or multiple operation.

Weatherproof felt gaskets keep out moisture, dust and insects.

Hinged globe ring has hand-operated toggle latch for easy maintenance.

We designed the new Westinghouse SG-10 Refractolux luminaire for two jobs essential to America's war industry. First, it provides traffic safety for "night shift" changes on crowded streets in industrial areas, and second, as protective lighting, it safeguards production from sabotage.

A wide choice of high and low-voltage canopies, wiring and mounting arrangements, globes, and refractors is available. All are interchangeable to make the unit suitable for system standardization. Also, the SG-10 may be supplied with a canopy for crossarm bracket mounting.

Our Westinghouse Lighting Specialists have complete information on this new, high-candlepower luminaire. They will gladly discuss its applications with you. Or, you may write Westinghouse Electric & Mfg. Co., Edgewater Park, Cleveland, Ohio, for a six-page descriptive folder, B-3068.

Westinghouse **LIGHTING EQUIPMENT**

"Trip Light"

MANY MOTORISTS HAVE MARVELED at what is commonly termed a "trip light" and have asked how they operate and how they differ from ordinary traffic signals. A trip light" (more properly known as a traffic-actuated signal) is a device operated automatically by electrical impulses.

This type of control depends for its operation upon traffic itself rather than upon a fixed schedule of timing as in the usual traffic signal. For instance, a vehicle approaching a red signal passes over a detecting device in or on the pavement. By so doing the car registers its presence in the controller by the closing of an electrical circuit. Through a system of relays the controller delivers the right-of-way to the vehicle which has demanded it. However, it does not necessarily follow that the right-of-way will be delivered instantly, as vehicles on the opposing road may have previously called for the green signal, and as a consequence the car approaching the red signal is prevented from entering an occupied intersection. On the other hand, the controller will yield the right-of-way as soon as the previous demand has ended.

If a constant stream of vehicles were passing through an intersection, it might be believed that a traffic-actuated signal would give that stream the continuous preference over that on the side road. This, however, is not the case. A continuous stream can hold the right-of-way only a limited time, after which it must yield to any traffic that may have arrived on the side road. Likewise, side-road traffic cannot hold up the main traffic stream indefinitely, but only as long as required for it to get safely through the intersection. Thus, it can be easily understood that if there were no demand from the side road, traffic on the main road might proceed for an hour or more, but would be halted only when and if the call is sent to the controller from the detecting device on the minor road.

By using such a device it is assured that not only the heavy stream of trucks and passenger cars can be handled during the rush hours but that an occasional car during the late night hours will not be forced to wait unnecessarily when there is little or no reason for such a delay.

—*Traffic Safety*, Published monthly by the Division of Traffic and Safety of the Ohio Department of Highways.

Stop and let the train go by—
It hardly takes a minute,
Your car starts off again intact
And best of all—you're in it!

DIFFICULT INTERSECTION EQUIPPED WITH THREE PHASE VEHICLE-ACTUATED TRAFFIC SIGNALS

This intersection is bisected by an Illinois highway leading to a suspension bridge over the Mississippi River. The location of bedrock for the bridge piers caused the bridge entrance to enter this intersection at an angle, creating an added problem in an already complicated situation. The other street passing through the intersection carries an extremely heavy industrial traffic volume. The intersection, therefore, carries transient and industrial traffic at times extremely heavy and at other times scattered. An interesting feature of this installation is the use of both pressure-sensitive detectors and magnetic detectors. Sufficient signal indications, channelization, and proper laning are important factors contributing to the successful passing of traffic through this intersections.—W. F. Benson, Manager, Municipal Sales, Eagle Signal Corp., Moline, Ill.

Toledo's Five Years with Parking Meters

THE CITY OF TOLEDO HAS USED PARKING METERS in the regulation of curb parking through the central business district since November 15, 1936. The original installation consisted of 1,000 meters, followed by an extension of 300 in October, 1939.

Our experience over this period has covered about all the varied situations that a metered parking system can develop, and the results obtained through that experience have been stabilized sufficiently to warrant our certification of some very definite conclusions:

1. Metered parking has passed from an experimental phase to one of proved effectiveness in providing the best-known method of maintaining an adequate turnover in the use of limited curb parking facilities.

2. Public acceptance of this type of control has been most satisfactory.

3. The need for metered parking must be determined by traffic requisites, with the revenue productivity completely subordinated to the superior factor of regulatory requirements.

4. The type of equipment used must be determined by the objective of the program, with the functional operations of the meter gaged to the established regulatory needs. The equipment must be mechanically substantial, vandal-proof and simple in operation. Original costs are far less important than satisfactory operation and freedom from mechanical difficulties. Maintenance costs can be nominal, or they can reach prohibitive proportions, depending on the mechanical adequacy of the equipment selected.

5. The results to be obtained through metered parking control will be directly proportional to the enforcement level maintained thereon. Slack enforcement will result in poor obedience, while efficient enforcement will produce the turnover desired.

6. Parking meters are simply a device by which a more efficient job of parking control can be done. Like any other traffic-control device, they should be used only where warranted by the traffic conditions, and should not be used where reasonable manual enforcement can produce the results desired.

We in Toledo are thoroughly satisfied with the job that our parking meters are doing, and where traffic conditions are comparable with those prevailing here we recommend serious consideration of this method of parking control.

GEORGE N. SCHOONMAKER,
City Manager, Toledo, Ohio.

Foil The Saboteur...
Light Your Property!

For Your Defense Lighting Needs Consult

LINE MATERIAL COMPANY

MAIN OFFICE • MILWAUKEE • WISCONSIN

During January we hope you will remember to mention THE AMERICAN CITY.

Outdoor Lighting

Streets—Highways—Floodlighting

Hanover Avenue, east of Irving Street, Allentown, Pa.: at left, the old-style lighting; at right, traffic-safety lighting. "The cut-off of light on the house side of the lamp gives maximum sidewalk lighting"

A Planned Street-Lighting Program Designed to Save Lives

By George F. Erich
Mayor, Allentown, Pa.

A STUDY of available statistics made by representatives of the city of Allentown, Pa., and the local utility showed that traffic accidents are materially reduced on heavy-traffic streets when the lighting is improved, and that good street lighting saves lives as well as affords property protection. Thereupon from police records and other available sources of material, a thorough survey of night traffic conditions within the city was made. All streets were classified in one of seven groups:

1. Business streets
2. Extra-heavy traffic thoroughfares
3. Heavy traffic thoroughfares
4. Medium traffic thoroughfares
5. Light traffic thoroughfares
6. Industrial streets
7. Residential streets

These were shown in various colors to denote their classification on a large scale map of the city.

Surveying our street-lighting system, we found that in the total of 2,840 lamps there was a relatively large number of small-sized lamps with a reflector-type luminaire erected at intersections and between intersections on the streets of the city. There were also a number of small-sized lamps mounted on short posts in the residential sections. From these 2,840 lamps, the city was receiving approximately 172,000 effective candlepower on the street surface.

It was noted by comparison with the traffic map that night traffic hazards had increased considerably through the years on a number of streets on which the old street-lighting system was installed. Engineers then designed a street-lighting system to light all the streets in the city, as shown on the traffic map, *to meet the maximum code requirements of the Illuminating Engineers Society*, which would be the ultimate goal. In this proposed system, consideration was given to the fact that larger-sized lamps produce more useful light per dollar spent than smaller sizes. The lamps of higher intensity were placed on streets that carried the heavy night traffic. It was planned to use a modern luminaire equipped with a glass bowl containing prisms so designated as to direct the light up and down the street rather than allow much of the light to be

North Seventh Street, north of Chew Street, Allentown: above, with the old equipment; at right, the new street lighting

"Special attention was given to mast-arm lengths to direct the maximum beam of light into the main traffic lane"

Why does this ad appear in *American City?*

"We shall need and demand . . . doubled and quadrupled production — ever increasing". . .

From The President's Address to the Nation – Dec. 9, 1941

In his historic December 9th address, The President indicated two broad policies to bring the armaments of the nation to the highest achievable levels. First, by the establishment of a seven-day work week. Second, by building new plants, enlarging and converting old plants for war needs.

INDUSTRIAL MANAGEMENT is faced with the vital responsibility of getting this monumental job done with the greatest speed. In specifying new construction or factory expansion it is important to remember how much *PLANNED LIGHTING* can do to speed production, increase efficiency, save costly errors and avoid accident.

Fundamentally, the principles of war time lighting do not differ from those of peace time lighting. It is only that, under conditions of national emergency, the planning and execution are far more difficult. So much has to be accomplished in so short a time. Moreover, there is no margin for compromise, no time for trial and error.

Today, there is another requirement for plant lighting equipment. As part of the *intermediate machinery* of production it must conserve the three basic elements required by the *immediate machines* of war. The lighting job must be engineered so that:

1 – **It will conserve Critical Materials** – the units should be designed and constructed so that they require a minimum of metals.

2 – **It will conserve Man Power** – providing the best seeing and working conditions through proper control and distribution.

3 – **It will conserve Electrical Power** – providing efficient illumination with the smallest expenditure of current.

For speedy, sound solution of your lighting problems under present conditions – consult the Holophane Engineering Department. This organization, regarded as authority in all matters of illumination since 1898 – offers advice and engineering help without obligation.

Write for practical data today.

HOLOPHANE COMPANY, INC.... 342 Madison Avenue, New York City

HOLOPHANE CO., LTD., 385 YONGE ST., TORONTO, CAN.

Because it appears to be the simplest way to explain our temporary absence from the street-lighting scene, we are reprinting this ad for American City. How long this period will endure is difficult to say. However, it is obvious that, faced with the urgent, immediate needs of the war program, it is our duty to place every available element of our resources at the disposal of the defense agencies. It is our sincere hope that the time will not be too far distant when we may once again resume our efforts in the field of traffic safety lighting with Holophane Refractors.

wasted by shining across the sidewalks and up the sides of the buildings.

This plan recommended luminaires to be installed on an average staggered spacing of 130 feet on heavy traffic streets with one side mounting on the curves at a mounting height of 25 feet above the street surface.

Particular stress was placed on silhouette lighting on the street surface. Consequently, where the heavily traveled streets intersect, lamps were placed on the far right of each corner so that the intersection would receive twice the lighting intensity as on the remainder of the streets. At all other intersections of the heavy traffic streets, lamps were placed on the far right corner in line with traffic to silhouette all objects on the street. This tends to increase pedestrian safety and decreases the possibility of vehicular collisions at intersections.

Spacing between intersections was arranged so that the lighting would be uniform throughout. Special attention was given to mast-arm lengths to direct the maximum beam of light into the main traffic lane and to assure uniform alignment of the lamps along the street. In this connection, the cut-off of light on the house side of the lamp was also given consideration to achieve maximum sidewalk lighting.

Particular attention was given to the lighting of bridges, underpasses and large intersections. Lamps were placed so as to minimize the effect of trees and other obstructions (although some tree trimming will have to be done), so that the city would receive the greatest amount of light on the streets by utilizing the most efficient equipment in the most effective manner.

Attention was also given to the daytime appearance of the installation. Rigid ornamental scroll-type mast-arms were used throughout, with internal wiring. The use of the rigid mast-arm eliminates all swinging mast-arms and loose wires hanging from the poles.

Specially treated wood poles were to be selected for uniformity in straightness and color. Construction at the top of the pole was to be done as neatly as possible for good appearance.

This system was elastic so that it would be made to conform to present-day conditions of traffic, and immediate and future allocations of money for street lighting in the city's budget.

It was decided that the first step in the program was to install the new system on 19 miles of heavy traffic streets, using equipment to provide three types of lighting distribution, and to replace all the old luminaires with modern luminaires at intersections on the remaining streets in the city. This will increase the number of lamps installed from 2,840, with approximately 172,000 effective candlepower on the street surface, to 3,079 lamps, with approximately 276,000 effective candlepower on the surface of the streets. Several sections of the new installation which have already been completed and energized have received much favorable comment.

In the accompanying photographs the lighting effect on the heavy traffic streets and the appearance of both the old and new installations are shown.

Sodium Lights Show Railroad Crossing

SODIUM LIGHTS have brought about a drastic reduction in night accidents at a crossing on U. S. Route 40 just west of Lewisburg, Ohio, says T. J. Hayes, Division Superintendent of the Big Four Railroad.

In a three-year period (July 12, 1934-July 12, 1937) prior to installation of the sodium lights, seven accidents occurred at this crossing, five of them at night. The night accidents happened between 11:10 P.M. and 5 A.M., and resulted in one death.

Although standard-sized danger signs were installed at this crossing, it was felt that visibility conditions should be improved by a caution light. With the approval of the Ohio Public Utilities Commission, Mr. Hayes arranged for the installation of two General Electric 10,000-lumen sodium lights to serve the twofold purpose of providing a warning light and creating a high night visibility at the crossing.

The lights were installed one on each side of the tracks, and were mounted on wooden poles 25 feet above the ground to light source. Bracket arms extended the sodium units out over the highway.

In a 3½-year period after installation of the lights, only one accident has occurred, and this one happened in the daylight. This has often been experienced where sodium lights were installed.

Street-Light Costs in Brainerd, Minn.

THE COST OF STREET LIGHTING IN BRAINERD for the fiscal year ending April 30, 1940, including labor, materials, and energy, was $6,427 for 606 ornamental units ($10.67 each) and $961 for 138 arc lamps ($7.37 each). The system consists of 219 all-night ornamental units, 387 part-night ornamental, and 138 part-night arc lamps. The per capita cost of street lighting, including Christmas street illumination, is 62 cents.

THE MUNICIPAL INDEX SURVEY

Hamilton Street, west of 19th Street, Allentown: above, the old days; at right, traffic safety lighting

"The first step was to install the new system on 19 miles of heavy traffic streets and put modern luminaires at intersections on the remaining streets of Allentown"

This is a type of lighting in keeping with economy and the times. Every well-designed street lighting system is a blackout on the sky and a visibility barrage on the pavement. These lamps on Interstate Avenue in Portland, Oregon —They're SLATER LAMPS of course.

SLATER

As to why— Write Dept. CS

SLATER ELECTRIC & MFG. CO., INC.

Manufacturers of Street Lighting Lamps

728 Atlantic Ave. Brooklyn, New York

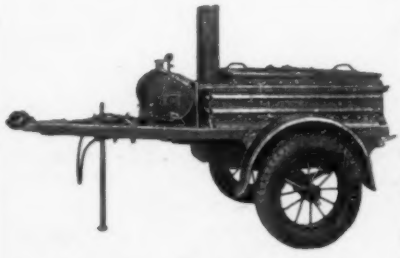
CUT MAINTENANCE COSTS 75%

Concrete slab maintenance costs can be reduced as much as 75% by the Koehring Mud-Jack Method. The Koehring Mud-Jack raises sunken concrete . . . walks, curb and gutter, driveways, streets, highways, etc., eliminating reconstruction costs. Write for the new Mud-Jack Bulletin illustrating applications and describing the Mud-Jack Method.

KOEHRING HEAVY DUTY

KOEHRING COMPANY
MILWAUKEE • WISCONSIN

MUD-JACK METHOD



CONNERY'S

Style "S" 4 Pass Oil-Burning Tar & Asphalt Heating Kettle is the ideal heater for highway maintenance. Fuel costs reduced 50% and hot material furnished twice as fast. Equipped with 6.00 x 20—6-ply, pneumatic-tired wheels with Timken bearings, truck springs and patented hitch for fast and safe towing.

Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

CONNERY CONSTRUCTION CO.
4000 North Second St. Philadelphia, Pa.

Enjoy the Seashore The Year 'Round

Outside ocean-view rooms, sundecks and verandahs, beautiful dining room at the water's edge, superb French cuisine, sports, entertainment, game room, magnificent Bar.

DAILY RATES (Per Person, Two in Room) FROM

$6.50 ROOM, BATH AND MEALS ★ ROOM ONLY WITH BATH **$3.50**

HOTEL CHELSEA ON THE BOARDWALK ATLANTIC CITY, N. J.

During January we hope you will remember to mention THE AMERICAN CITY.

Ralph T. Dorsey, Los Angeles

Crete Proud of New Lighting

THE ACCOMPANYING PHOTOGRAPHS of the lighting system now being installed in Crete, Nebr., illustrate the advantages of the modern over the obsolete. The old system consisted of 300- to 400-watt lamps on ornamental poles. The new lighting consists of Union Metal steel poles with General Electric luminaires, 10,000-lumen lamps, with light center 23 feet above pavement. The dark picture shows the old lighting on Main Street. The lighter picture shows some of the new lights on 13th Street, which is also Highway 33.

D. J. DRAKE,
Light Commissioner, Crete, Nebr.

One of Los Angeles sodium lighted intersections

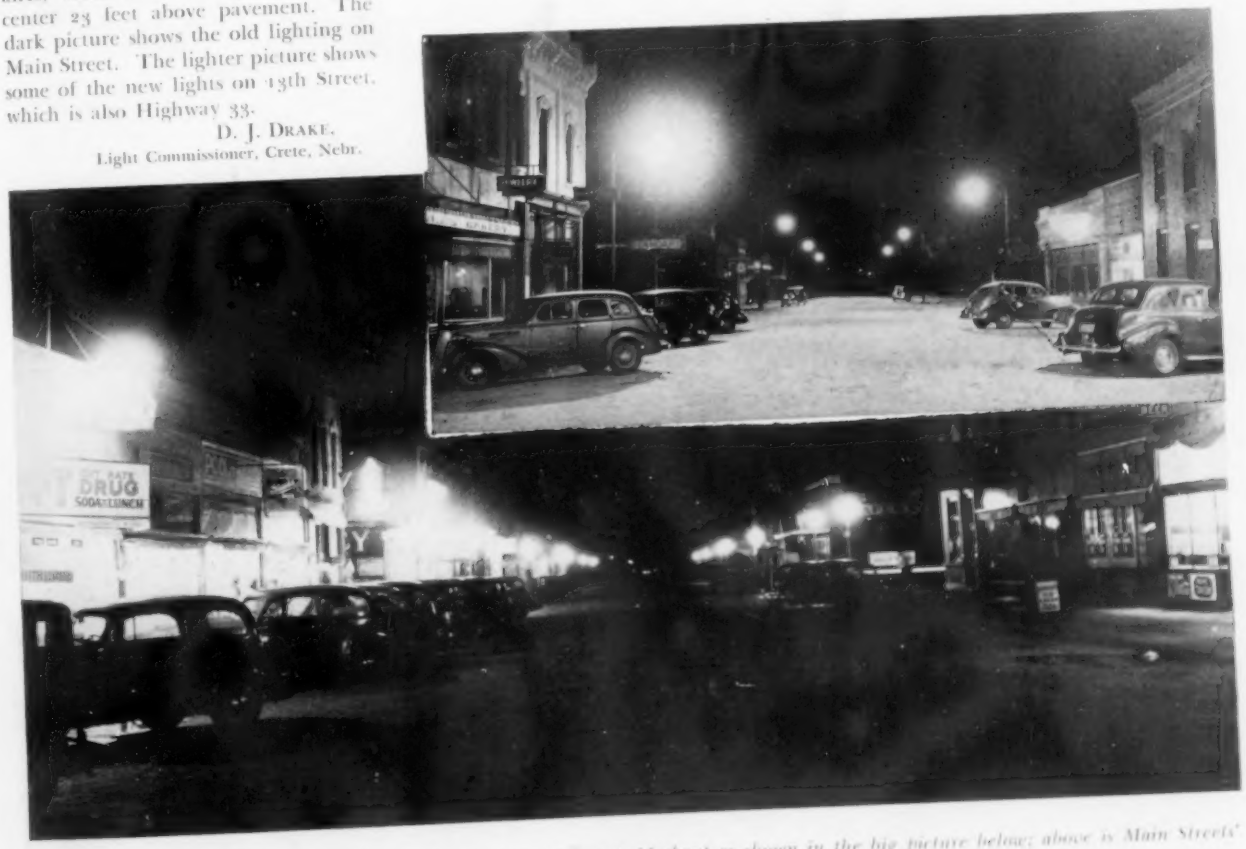
Yellow Light Saves Money

IF ECONOMIC LOSSES IN MONEY were part of the income of a city there would be double incentive to reduce them wherever possible. For instance, two years after the expenditure of about $8,000 for the installation of sodium lighting equipment at 20 Los Angeles intersections, records show savings of $142,824 in reduced night accident costs at these previously dangerous zones. "Before and after" accident experience was presented on page 103 of the March, 1940, issue of this magazine. Now the figures for two years are available, including the "before and after" economic costs of accidents at each of these intersections. The fatality, injury, and city property damage costs are based on National Safety Council evaluations of $11,500, $425, and $25 respectively. Whereas night collisions after dark were reduced 72 per cent at these intersections, collisions during daylight increased 26 per cent.

The night accident reductions were brought about for the most part by the installation of only one General Electric pendant type 10,000-lumen sodium luminaire at each intersection, and at most two or three. Luminaires with 2,500 to 6,000-lumen incandescent lamps had been used previously at all but one of these intersections.

Experiments with the yellow caution sodium light were begun in 1936 by the city with three intersections; 68 in 1937; 260 since then.

RALPH T. DORSEY,
Traffic Engineer, Los Angeles, Calif.



Crete's old ornamental system provided an involuntary pavement blackout as shown in the big picture below; above is Main Streets' new lighting

BOOMS AND MASTS
SKIDS AND BOXES
STREET AND HIGHWAY SAFETY LIGHTING STANDARDS
FLOOR BRIDGING
PROTECTIVE LIGHTING STANDARDS
MONOTUBE FOUNDATION PILING
PRACTICE BOMBS
UNION METAL PRODUCTS
HAVE ENLISTED FOR THE DURATION
• Union Metal products, plants and personnel are at the disposal of our government for the duration of the emergency. To date, our efforts have been confined to producing the items illustrated above for defense purposes. All will be needed in even greater quantities in the months to come and, as the demand for other steel specialties broadens, we will adapt our facilities to meet each and every problem to the utmost.
America has served Union Metal well during its 35 years of existence. It's a privilege to pledge our all-out effort in return!
THE UNION METAL MANUFACTURING CO.
Canton, Ohio

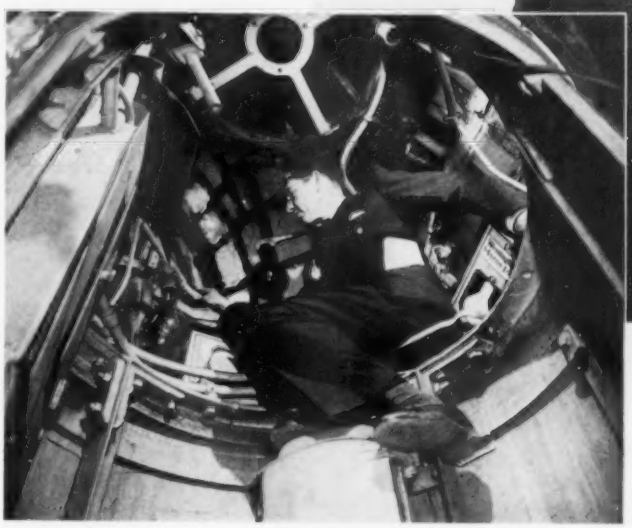
New Lights for Liberty

THE LIGHTING SYSTEM FOR THE STATUE OF LIBERTY in New York harbor was to be remodeled to include brighter beacon lamps for the torch and additional floodlighting with a battery of powerful spotlights, as a gift from the Westinghouse Electric and Manufacturing Company. War has suspended the project.

Westinghouse engineers, led by Samuel G. Hibben, Director of Applied Lighting, Bloomfield, N. J., have experimented with new mercury-vapor lamps used on a large scale in big industrial plants. A bank of them installed in the Statue's flame would double the present beam and create a dramatic color effect on the manument. The faded green hue of the Statue at night would be transformed into a brilliant, almost phosphorescent emerald color. If used in the torch, mercury-vapor lighting will cast a blue-white gleam visible afar.

Dedicated by President Grover Cleveland on October 28, 1886, the Statue of Liberty lighting system was last remodeled by Westinghouse in 1931. A total of thirteen 1,000-watt lamps now light the torch, and ninety-six 1,000-watt lamps are distributed around the base.

Below is Samuel G. Hibben, Westinghouse War Lighting Specialist, in the Torch of the Statue of Liberty Shown at Right



Long May She Gleam

A Letter Promising Instantaneous Blackout

THE STREET LIGHTING OF NEW YORK CITY is controlled by 35,000 astronomical switches; in other cities there may be up to three hundred different interrupters. This is the normal and, at present, most economical method of controlling street lighting. Central control would require either the complete remodeling of the network, or the use of high-frequency currents necessitating costly and delicate apparatus.

There have recently been established in the United States, however, the facilities for creating what in Europe is known as the La-Ru remote control system which provides central control of public lighting in any city. This system was successfully tried in numerous cities in France and in a number of cities in Belgium and Italy. It may be predicted that this system installed in American cities will aid tremendously in obtaining black-out.

This "All-Out" control turns off all street lamps or traffic lights from a central point of control. It consists of a central device called the transmitter which connects into the main supply circuit and sends a low-frequency impulse which operates a relay at the point or points at which current is taken from the feeder for street-lighting circuits. It can be used equally well for starting alarm sirens or all-clear signals; extinguishing advertising lights; stopping or starting apparatus; or turning on as well as off, the street and traffic lights.

In case of aerial danger, this installation sounds the alarm and extinguishes the lighting in a few seconds. When the danger is over, it is just as easy to give the signal, "end of alarm," and to light the streets.

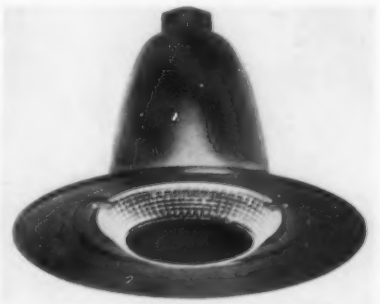
PAUL J. LAZARD.

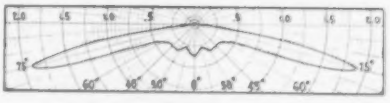
Defense Control Systems of America, Inc., 11 Broadway, New York.

Tested Blackout Lighting Unit

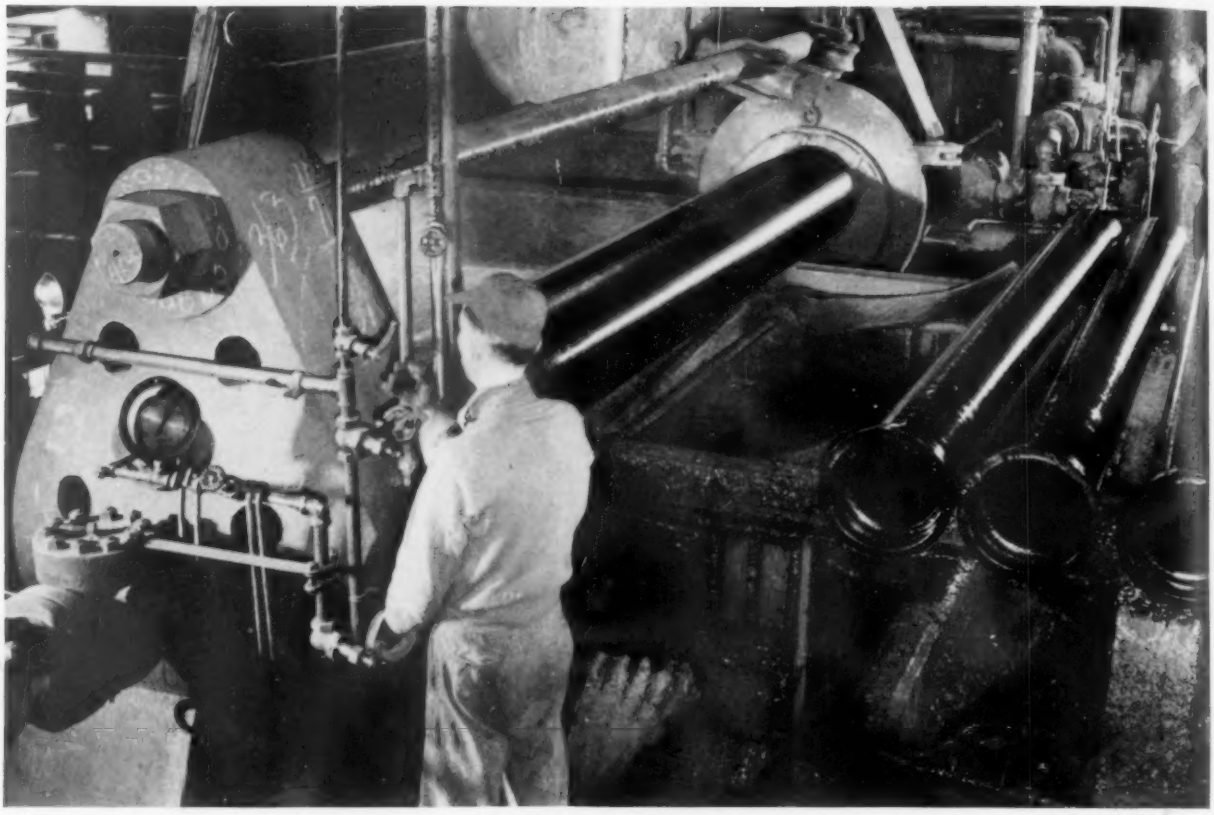
HOLOPHANE HAS AVAILABLE FOR PROMPT SHIPMENT a blackout lighting unit designed in cooperation with the engineers of the Holophane Company Limited in London, England. Following the requirements of the British Air Raid Precaution Specification, its lighting performance is within the severe limits established for this application in England.

The usual spacing between units is 100 feet with a mounting height of 20 feet, and under these conditions, using a 6-watt S-14 lamp, the illumination averages 0.0002 footcandles and a maximum of 0.0004 footcandles (star light on a clear night). Obviously other mounting heights and spacing and other lamp sizes can be used to secure higher values of illumination as required. The absence of light at 90 degrees and above make certain that there is no detection or identification of the units and consequently of the surrounding area from hostile planes.





Blackout lighting unit and its vertical candlepower distribution curve; hundreds have been ordered for industrial protection in Hartford, Philadelphia, and Charleston, S. C.



* The "Hydrostatic Proof Test," illustrated above, is an acceptance test for cast iron pipe. Every full length of pipe—whether for water, gas, sewer or industrial service—is subjected to this test before shipment. It is one of the routine tests made by this Company to insure that the quality of its pipe meets or exceeds the requirements of accepted standard specifications for cast iron pipe. *United States Pipe and Foundry Co., General Offices: Burlington, N. J.* Sales Offices in Principal Cities.

* One of a series of controls in operation at each of our plants, beginning with inspection and analysis of raw materials and ending with tests of the finished product, all subject to the central control of our headquarters staff at Burlington.

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During January we hope you will remember to mention THE AMERICAN CITY.

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives, and Others

Economy in Construction of Four New Topeka Buildings

TOPEKA, KANS.—During the last two years, four major structures made their appearance on the city skyline: a $1,500,000 combined city hall and auditorium; a new fire station; a new street-department garage; and a new shelter house in one of the principal parks. Fortunately, contracts were let and construction was well under way, in fact nearly completed, before any effects of the now-current shortage in certain building materials were felt. This fortunate timing also allowed economical construction.

Particularly thrifty was construction of the street-department garage, because bricks for it were supplied from the old city hall and auditorium and labor was supplied under a WPA project. Of simple design and construction, the garage is nearly half a block long, yet wide enough to allow easy passage of vehicles inside. It is adequate to house all street-department equipment which formerly had been, in part, "roomed out" or left in the open.

Dedicated early in the year with a banquet for all Kansas mayors and editors, the combined Municipal Auditorium and City Hall is a structure of 188 by 306 feet, set in a block-square adjacent to the business district. It is three stories high; houses all city offices in its north half; and includes, in the south portion, a 4,247-seat arena-auditorium, a basement banquet hall seating 1,800 diners, a little theater on the second floor, a large stage and orchestra elevator, ample dressing rooms and showers, and ten rooms for group meetings.

By an overwhelming majority, Topeka voted $850,000 in bonds for its share of the cost of the building. The Federal Government, through the Public Works Administration, provided an additional $672,409. But during the period of construction, the city was able to pay $430,000 of the construction costs out of current funds, and it was therefore necessary to issue only $420,000 in bonds out of the total of $850,000 voted for by the city. The beautiful cream-colored limestone building now is surrounded by attractive lawn and landscaping features. Streets around it were widened and resurfaced early in 1940.

Two new Topeka buildings: fire station, and combined municipal auditorium and city hall

☆ IRVINGTON, N. J., founded as Camptown in 1692, and taking its present name in honor of Washington Irving in 1852, harbors within its 2,000 acres important industries including chemicals, insulating materials, machinery, metals.

☆ Since 1937, Irvington, N. J., has had its insurance program audited from time to time by specialists of The Home Insurance Company in order to keep up-to-date the increased amount of coverage and smaller premium cost achieved by the original HOME survey.

☆ By making use of our engineering facilities, every city government can have a streamlined fire-insurance program based on an inspection and audit of each individual building. . . . Valuations will be recoverable values; policies will be uniform; the minor improvements which have such an influence in reducing insurance cost will be indicated; this procedure will lead to maximum protection at minimum premium cost.

☆ Use of our municipal service places no obligation upon you.

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ENGINEERING DEPARTMENT

THE HOME FLEET OF INSURANCE COMPANIES

59 MAIDEN LANE NEW YORK CITY

During January we hope you will remember to mention THE AMERICAN CITY.

Improving Municipal Administration

Current Items from the Public Administration Clearing House

Safeguarding Zoning Exceptions for Defense Plant Expansions

DETROIT—one of the cities with a stringent zoning ordinance regulating land use—has just amended the ordinance to meet the war emergency, but has provided for withdrawal of the permission granted in the amendment when the war is over, the American Society of Planning Officials reports.

The action was taken when defense plants scattered throughout the city began to receive war orders they could not fill without expanding facilities—a step forbidden by the zoning ordinance for plants in non-industrial neighborhoods.

Recognizing that non-conforming use of land delays the improvement of property, the city council arranged for two safeguards:

1. Industries essential to national defense are permitted to construct additional plant facilities, but this construction will be allowed to stand only six months after defense production ceases in the plants.
2. A bond equal to the cost of the additions is required, to guarantee their removal after the war and to indemnify the city for any liability.

Several Cities Plan Free Transportation for Service Men

FREE RIDES ON PUBLIC TRANSIT SYSTEMS for service men in uniform are in force in at least one city—Detroit—and are under consideration in several others, including Chicago and San Francisco, reports to the American Municipal Association show.

Since December 1, Detroit has granted the privilege to any member of the armed forces who is on leave of absence and in uniform. The service men are required to exhibit their leave cards or furlough sheets, and the car or bus operator issues an identification ticket to be dropped in the fare box for purposes of record.

Detroit's public transportation systems are owned and operated by the city. Bus fares are 10 cents or five cents for certain short distances. Streetcar and rail-bus fares are six cents with a one-cent charge for a transfer.

During the first week of the gratis service the transportation lines of this city carried a total of 11,972 service men, ranging from 1,057 to 3,098 a day.

Chicago's corporation counsel, on order of the mayor and a resolution of the city council, has petitioned the Illinois Commerce Commission to request transit lines in the city to give free transportation to members of the army, navy, and marine corps. According to the petition, the rides would be granted only to service men in uniform, who need not be on leave. Chicago's transit lines are all privately owned.

San Francisco's board of supervisors, voting free rides to service men, also has placed the request before the state public utilities commission. Meantime, one of the private taxicab companies in the metropolitan area has announced it will transport all service men to navy and coast guard stations without charge. The same offer has been made in the Los Angeles area.

In Baltimore the city council has passed a resolution requesting bus transit companies to make fares half-price to service men. The companies are not locally owned. On order of the governor of Maryland the state-operated Chesapeake Bay ferry will grant free passage to all members of the armed forces on Christmas holiday roundtrips between their posts and homes.

Municipal Employees Classified for Emergency Duties

TO PROVIDE A RESERVOIR OF MAN POWER which may be drawn upon for civilian defense or other emergency purposes, Sacramento, Calif., has made a personnel inventory of its municipal employees, the Civil Service Assembly of the United States and Canada reports.

The survey was carried out by the Sacramento Municipal Foremen's Conference, an organization of all city foremen. Members of the police and fire departments were not included in the inventory.

Returns from questionnaires provided up-to-date lists of city employees with their addresses and telephone numbers, as well as pertinent information about skill or work qualifications other than those demonstrated in their present jobs. For example, an accountant may pursue carpentry as a hobby, and a stenographer may possess first aid training.

Data obtained by the survey has been keyed according to potential emergency qualifications and filed with the city's Red Cross major disaster plan. The information is available for immediate access by any city department needing emergency man power.

If more help should be needed by the police, fire, water, electrical or other city department, qualified persons will be taken first from such municipal divisions as park or recreation, where personnel may be cut down with no immediate danger to city service, then from other departments in increasing order of their importance to vital city functions.

It was felt that city employees would be more valuable for emergency service than privately employed volunteers, since the former are more familiar with city organization, are of known reliability and have a direct interest in city services.

Training courses in fire fighting, emergency water main or sewer repair, police patrol work and similar emergency tasks are planned for city employees.

Rent Control for Washington, D. C.

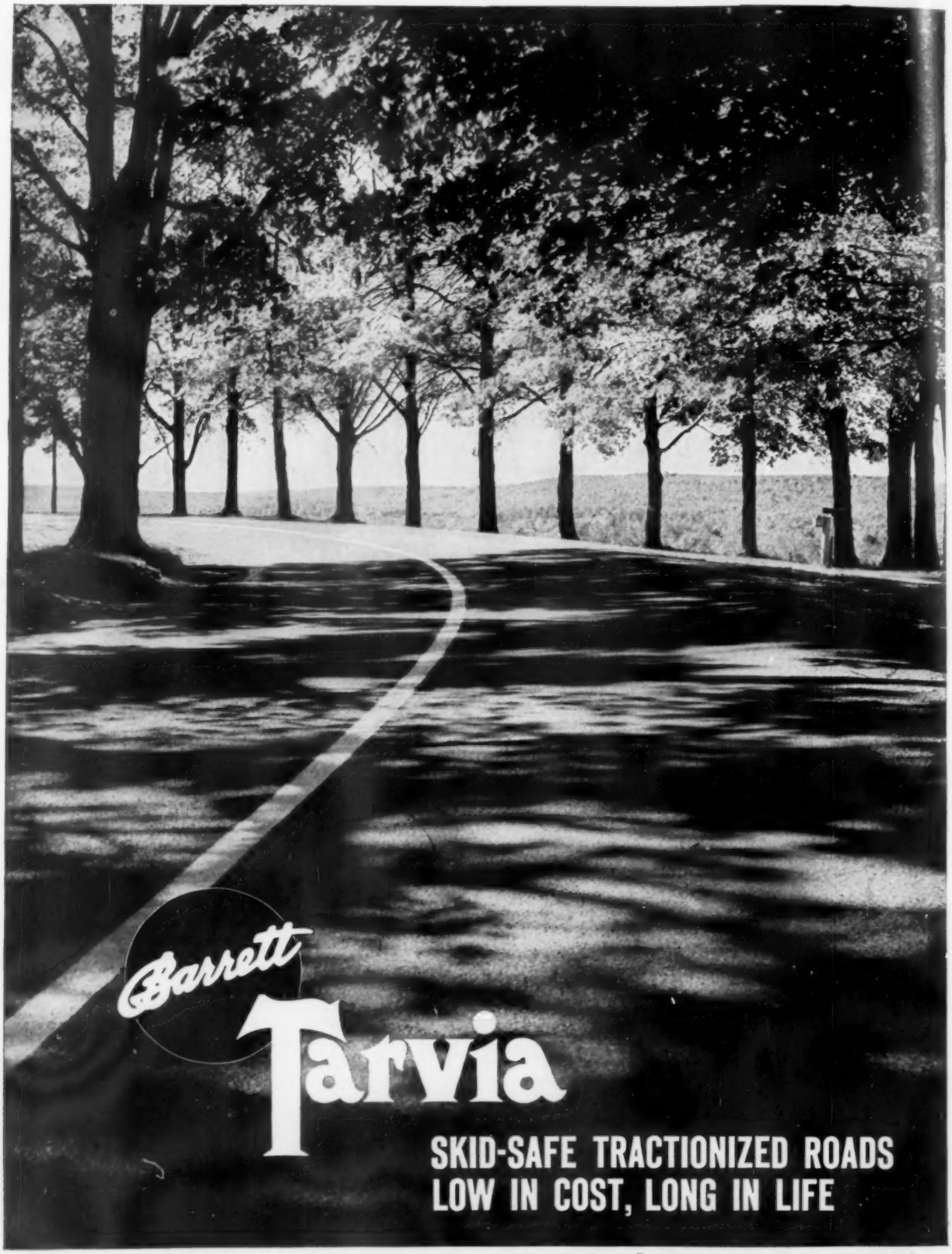
THE FIRST MEASURE ENACTED IN THIS COUNTRY TO CONTROL RENTS goes into effect in Washington, D. C., on January 1. As analyzed by the National Association of Housing Officials:

The act pegs rentals at their level of January 1, 1941, and remains in operation until December 31, 1945.

A rent administrator, appointed by the District Commissioners at a salary of $7,500, will be in full charge of the act and his decisions will be final unless reversed by a court of law. Twice a year he must present Congress a report on activities of his office.

Before January 1 all landlords, including hotel keepers, are required under the new law to notify tenants of the rates to be charged. A landlord who gives false information on rates charged last January 1 will be liable for a $1,000 fine, one year's imprisonment, or both.

Tenants who suspect they are being overcharged simply petition the rent administrator for an adjustment of rents, and a trial examiner conducts hearings of evidence from both landlord and tenant. After study of the evidence, the examiner makes his recommendation to the administrator, at the same time notifying the contesting parties. If neither party appeals to the administrator for a review of the



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Why not remember to mention THE AMERICAN CITY?

case within five days, the findings are considered final. Recourse to the courts is further possible in appealing the decision.

To avoid retaliatory measures by a landlord whose tenants protest rental rates, the act places new restrictions on the former's right to evict. Increased services, but not minor renovations, will be the only basis for charging higher rent.

The Capital had a type of rent control following the last war, when there was a heavy housing shortage. Standards for rates were defined merely as "fair and reasonable," however, and the act failed to fulfill its purpose.

Rent boosts written into recently signed leases will be invalid. The January 1, 1941, "freezing point" for rents was chosen partly because the most rapid rent rises in Washington occurred since that date.

Although half a dozen states earlier this year considered enabling legislation to make possible municipal rent control regulations, no laws were enacted, and any regulations now in force in cities are directed by the "fair rent committees" suggested by the Rent Section of the Office of Price Administration and Civilian Supply. The price control bill now under Congressional consideration has a section on control of rents in defense areas.

Tourist Camp Accommodates Defense Workers

THE MUNICIPALLY OPERATED TOURIST CAMP IN WASHINGTON, D. C., which formerly restricted trailer tenants to two weeks' stay, has lifted the limit entirely for people engaged in defense activities in the general Washington area, the American Municipal Association reports.

Tenants in the part of the park where electricity is furnished, however, pay a progressive increase in daily rates. The first two weeks' tenancy is at the rate of 65 cents a day; the next two, at 75 cents a day, and so on in two-week jumps until the rate of $2.10 a day is reached. The reason for this practice is that the number of electrical connections for trailers is limited.

Defense workers living in the non-electrified part of the park, using their own batteries for lights, may stay indefinitely, unless the park becomes entirely filled and space is needed for tourist trade. In this case, the oldest occupants in point of time would have to move out in progressive order toward the more recent tenants.

At present there are approximately 25 defense-worker families occupying trailers in the tourist park.

New Federal Aid for Housing and Community Facilities

$300,000,000 *Voted for Temporary Housing; Similar Sum for "Lanham Act Extension" Pending.* $150,000,000 *for Community Facilities Also Approved*

AS THIS issue of THE AMERICAN CITY goes to press, final action has not been taken by Congress on the Lanham Act Extension. Just before recessing for the holidays, the Senate adopted some important and desirable amendments to this legislation as previously passed by the House (H. R. 6128). It is hoped that both houses will reach an agreement early in January, thus making $300,000,000 additional available for "permanent" defense housing, plus $150,000,000 for aid to cities on community facilities and other public works projects required as a result of the defense program.

Meanwhile Congress appropriated last month a separate sum—also $300,000,000—to the President "to provide *temporary* shelter in localities where for any reason arising out of the war a shortage of housing exists." According to a bulletin issued December 24, 1941, by the National Association of Housing Officials, "The President may act 'though such agencies of the Government as he may designate. . . .' In practice he has relied upon the Defense Housing Coordinator for recommendations of the need and the type of temporary housing to be provided. Probably most of the assignments under the new funds will go to the FWA Administrator, who in turn will have the right to make further assignments to federal and local agencies."

In addition to the $300,000,000 for temporary shelter, the third 1942 Supplemental National Defense Appropriation Act (H. R. 6159) carries $59,115,300 for airports and $129,600,000 for so-called strategic highways and defense access highways and streets. The airport appropriation will enable the Administrator of Civil Aeronautics to authorize financial aid to 105 additional civil airports over and above the number already included in the present program.

The Municipal Bond Market

The Effect of the War on Bond Prices

(From *The Bond Buyer for January 3, 1942*)

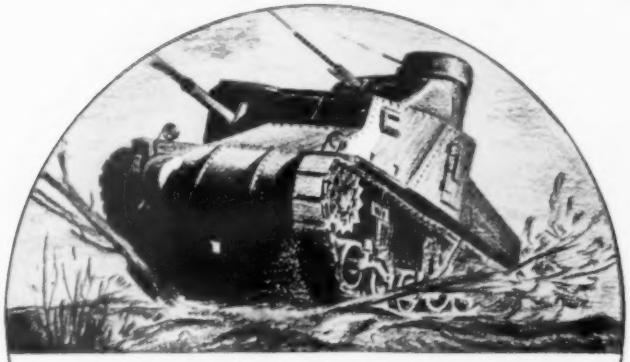
EXACT computation of municipal bond price averages as of the close of 1941 is impossible. Over-the-counter markets have been so inactive that aavilable quotations have been essentially nominal. Only in the case of such dollar bonds as New York Cities, Ports, Triborough, Turnpikes, etc., has it been possible to follow the movement of prices at which substantial amounts of bonds actually have been traded in recent weeks. Keeping in mind these qualifying remarks, our Municipal Bond Index for the year-end reflects a market decline of 31 basis points since December 1 and 34 points from the 1941 peak. This may be contrasted with a 20 basis point drop in Treasury 2¾s of 1965/60 and the taxable 2½s of 1958/56 and a 17 point fall in the new 2½s of 1972/67—the only issue which has received Government support since the recent break.

Such new issues as have been marketed since formal war was declared have sold at prices which, on the average, are off to approximately the extent indicated by our Index. For example, the Tulsas, one of the largest new items, were priced to yield about 50 basis points better than they would have been offered prior to December 7, while a Minneapolis offering reflected a readjustment of about 30 points, while a block of Worcester, Mass., bonds went out quickly at a price concession of only about 15 basis points.

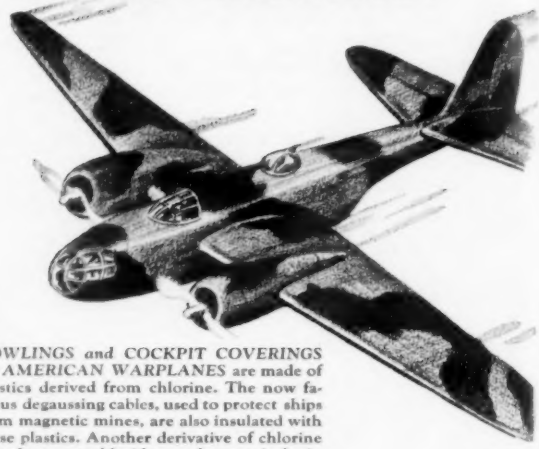
This is a rough measure of the effect of the first shock of formal war. The next concern of the bond men is the more lasting secondary reaction. Have we seen the worst and, as in earlier crises in World War II, will the market recover its losses quickly and go on to still higher levels? One would be rash indeed to attempt to answer such a question at this moment, but it may at least be suggested that there is one powerful factor supporting the municipal market and which may be expected to remain a potent force marketwise. That is reduced supply. Even before the country's transition from a "defense" to an all-out shooting war status, it was clear that States, cities and other municipal governments would curtail debt-financed operations. Now there is an even more compelling reason to follow such a course. The existing supply of State and municipal debt is not great and is subject to rapid retirement through annual payment and redemption of serial issues and absorption by sinking funds of term bonds. Should new issues be shut off entirely it would be but a matter of a decade or so and municipal securities would become almost as extinct a species as the buffalo.

CHLORINE GOES TO WAR

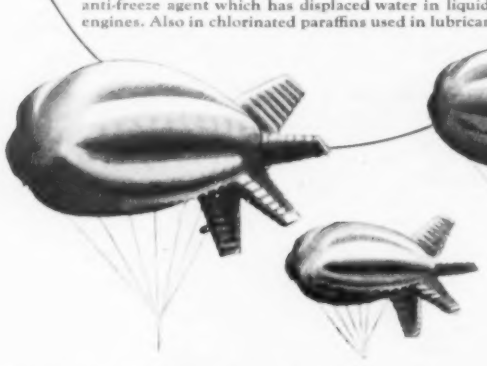
as America mans its battle stations!



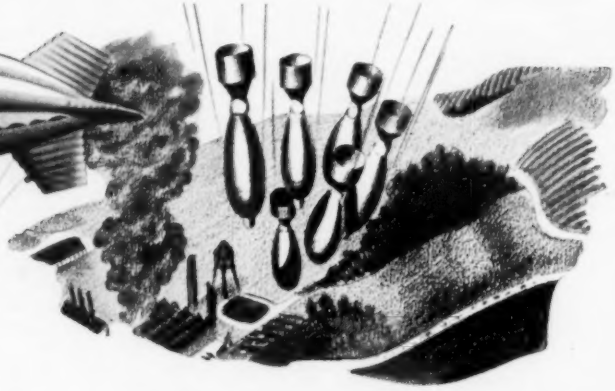
HI-OCTANE GASOLINE for U. S. TANKS and PLANES is produced from ordinary gasoline and tetraethyl lead. Rapid precision-fitting of tank and plane parts demands trichlorethylene, a degreasing solvent. Both tetraethyl lead and trichlorethylene require large quantities of chlorine. Chlorine is also used in the manufacture of diethylene glycol, the anti-freeze agent which has displaced water in liquid-cooled engines. Also in chlorinated paraffins used in lubricants.



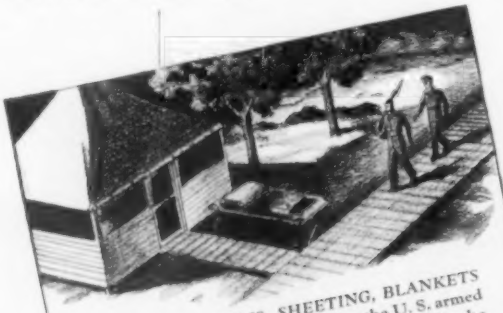
COWLINGS and COCKPIT COVERINGS for AMERICAN WARPLANES are made of plastics derived from chlorine. The now famous degaussing cables, used to protect ships from magnetic mines, are also insulated with these plastics. Another derivative of chlorine is carbon tetrachloride, used extensively in fire extinguishers for tanks, planes and trucks.



BARRAGE BALLOONS, capable of withstanding heat, gases and sunlight, are being manufactured from synthetic rubber. America's fast-growing production of synthetic rubber for protective balloons and other wartime needs has put an extra load upon the chlorine industry.



ALL-OUT PRODUCTION of MUNITIONS requires large amounts of chlorine, especially for processing of cotton linters for smokeless powder and other explosives.



TENTS, UNIFORMS, SHEETING, BLANKETS and PARACHUTE FABRICS for the U. S. armed forces are being turned out in millions of units by the textile industry. Thousands of tons of liquid chlorine go into the processing of these vital war materials.

BACTERIA POLLUTION by ENEMY AGENTS is being guarded against by chlorine. Public water works are now required to double the chlorine residual of water as an anti-sabotage measure. U. S. bases and army camps also require large quantities of chlorine for water purification and sewage treatment.

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of
"The Master Plan"

City Map—Eminent Domain—Building in Bed of Mapped Street

NEW YORK.—*In re Southern Boulevard*, Appellate Division, June 18, 1941, reported in 28 N. Y. S. 2d, 386, 262 App. Div. 265.

In September, 1933, the Board of Estimate of the City of New York authorized the widening of Whitlock Avenue.

In the latter part of 1937, the claimant in this case obtained a permit from the Department of Buildings for the erection of a "diner," at a point within the area of the proposed widening.

In June, 1938, title to the land in question vested in the City of New York.

Article III, Sec. 35, of the General City Law provides a scheme for the adoption of an official city map, under which no permit shall be issued for any building in the bed of a mapped street unless the owner first receives permission from the Board of Standards and Appeals. To get such a permit the owner must show that he is unable to obtain a fair income from this property without the proposed improvement; and the Board shall so act that any improvement allowed by it shall as little as practicable increase the cost of condemnation.

The claimant is asking compensation for his "diner," with relation to which claim the Court says:

"The constitutionality of this statute was attacked . . . in the case of Headley v. City of Rochester, 272 N. Y. 197. . . . The Court of Appeals, without passing on the question of constitutionality, refused to grant judgment to plaintiff because it said that he had suffered no damage; that there was no threat of a taking of any of his property rights and no proof that he had intended to build. . . .

"The claimant [in the present case] having obtained approval from the Department of Buildings, was not in a position to appeal to the Board of Standards and Appeals. . . .

"We do not think that the circumstance that the permit which was issued to claimant was irregularly issued would make the structure illegal, nor would it preclude the claimant from receiving just compensation for any damage it might sustain if the city not only condemned but appropriated its building. If the statute be otherwise construed, we think that it would deprive the claimant of property without due process of law and be an unconstitutional exercise of the legislative power.

"In Headley v. City of Rochester (supra) the Court of Appeals said: 'The statute here does not purport to give to the city the right to appropriate the plaintiff's land or any part of it for less than the full value of the lands with the improvements thereon erected at the time of such appropriation.' . . .

"[In a former case] in admeasuring damages the Court treated the structure as if it were personal property. It held that the measure of damages was the cost of removing the building from the lot. Whether this would be the correct rule and measure of damages in all cases where property has been erected in a proposed widened area after the filing of a map is not the question presented to us. Here the question is whether claimant is entitled to any compensation. We think that if the city appropriated the structure after condemnation, a right to some damage would exist. A new trial should be had to ascertain all the facts and circumstances connected with the taking."

Editorial Comments on the Foregoing Case

By FRANK B. WILLIAMS

IN order that a plan for the development of the land within the limits of a community, adopted by it, may accomplish its purpose, it is most desirable that the plan be given by law a measure of stability. To this end there should be some control of the action of the legislative body of the community in order that they shall make changes in the plan only after due deliberation, and some control over the owners of land affected by the plan so that they cannot make improvements on their land which may make the execution of the plan unduly expensive and therefore impracticable.

There is no constitutional difficulty in securing the first of these objectives. In order to plan, the local community must obtain the power to do so from the state legislature. This is usually granted by a state enabling act, in which the necessary limitation on local action may be introduced. The best form of such a limitation is a provision making any ordinance with regard to the plan and improvements of real estate under it, contrary to the advice of the local planning commission, which must first be obtained, lawful only by a more than majority vote of the local legislature.

The second desideratum, the control of the landowner, is more difficult. Our state and national constitutions provide that private property shall not be taken without compensation, and any limitation of property rights that cannot be sustained under the police power is a taking. Such measures therefore must be reasonable, under all the circumstances.

The need of a limitation of the rights of the landowner in order to obtain effective planning has for many years been felt in this country. The form in which such a limitation has heretofore been made is to forbid him to erect a structure in the bed of a mapped street, or to deny him damages for it, if he does so, when the land is taken for the construction of the street. The first law to this effect was passed by the State of New York in 1807, and similar laws were enacted in a number of states subsequently. All these laws have long since been declared unconstitutional except in Pennsylvania; and in no jurisdiction has it been considered safe to follow the Pennsylvania law.

Feeling that the prevention of building as a rule in the bed of a mapped street was essential to planning, The Regional Plan of New York and Its Environs drafted a law containing a provision to that effect, which was passed in the State of New York in 1926, and has since been followed in other states. The draftsmen of this law felt that it was the possibility of injustice in special cases that made these laws unconstitutional, or at least that it was this possibility that even in these days, when the need of planning and the breadth of the police power were more fully realized, would make the courts of today feel that such a law could not be sustained. Taking a leaf from their experience in zoning, these draftsmen provided that while as a rule no building could be erected in the bed of a mapped street, if in a special case the land was not yielding a fair return, the owner might go to a local board of appeals, and be given relief subject to conditions, if necessary, so that the building might as little as possible impede the carrying out of the plan.

The case digested above arises under this provision. It has been interpreted by the highest court in the State of New York, in *Headley* v. *City of Rochester*, to be found in these Notes for February, 1937. The Court in that decision, as is usual, passed upon such phases of that clause as were involved in that case, but the reasoning of the Court was such as to lead planners to hope that as occasion arises in the future, from time to time, it would be upheld in its entirety.

The present case, also with regard to this clause, is by no means a clear-cut or final interpretation of it, but is summarized by us because any decision in this matter is of interest to all who are concerned with planning. If the case should go up to the highest court in the state, the decision then will be read with great interest.

The reader who wishes a fuller discussion of these matters is referred to Model Planning Laws, 1935, by Bassett and others, and The Master Plan, 1938, by Bassett.

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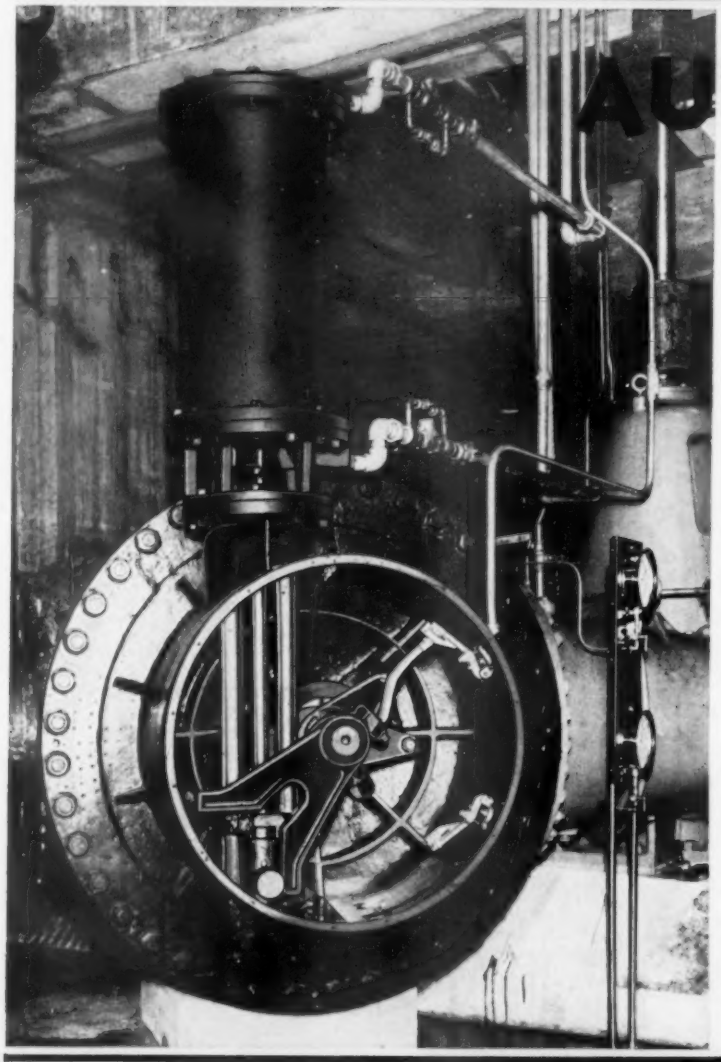

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At left:
Chapman Automatic Cone Valve
Sewage Pump Discharge Check
Showing Operating Mechanism

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INDIAN ORCHARD, MASS.

During January we hope you will remember to mention THE AMERICAN CITY.

Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, WASHINGTON, D. C.
CHARLES S. RHYNE, Executive Director

Model Ordinance on Blackouts and Air Raid Protective Measures

IN THE December, 1941, issue of THE AMERICAN CITY on page 107 there was presented a discussion entitled: "Blackouts—Liability of City for Accidents Caused by Such Lighting Restrictions." Since the material for the December issue was prepared, the declarations of war on Japan, Germany, and Italy have focused attention on blackouts and air raid protection measures, and practically every city in the Nation is now considering the adoption of an ordinance on this subject to provide local cooperation with Army and Navy officials in carrying out defense measures. The ordinances and proposed ordinances of cities and the act which the Congress adopted for the District of Columbia have been forwarded to the National Institute of Municipal Law Officers by member city attorneys who drafted this legislation. The Staff of the National Institute has used this information in preparing several drafts of a model ordinance on the subject for its member cities. These drafts have been changed from time to time to meet the requirements and problems developed by the experience of cities with blackouts in the last few days.

Latest Draft

The latest draft of this model ordinance is set forth below. It should be stressed that this ordinance must be implemented with detailed orders, rules, and regulations developed to cover the individual requirements of each city. Because of the need for rapid change in orders, rules, and regulations to meet local problems, the Model Ordinance does not attempt to set these forth. The pamphlet entitled "Blackouts," prepared by the War Department and published by the United States Office of Civilian Defense, should be used in consultation with the Army officials assigned to each city's local corps area in preparing adequate orders, rules, and regulations for the administration of the Ordinance.

MODEL ORDINANCE ON BLACKOUTS AND AIR RAID PROTECTION

Prepared by the National Institute of Municipal Officers, 730 Jackson Place, N. W. Washington, D. C.

An Ordinance Authorizing Blackouts and Air Raid Protection Orders. Rules and Regulations; Prescribing Penalties for Violation Thereof; and Declaring an Emergency.

WHEREAS, a state of War exists between the United States of America and Japan, Germany, and Italy, and the defense of the United States of America is in the hands of the Army and Navy; and

WHEREAS, in modern warfare no city, however distant from the enemy, is free from attack; and

WHEREAS, lights at nighttime are a definite aid to the enemy in reaching military and other objectives; and

WHEREAS, blackouts, when ordered by the Army or Navy are essential to the preservation of life and property in this city, and it is imperative that the City of ———— aid the Army and Navy by all possible cooperation and assistance; and

WHEREAS, failure to extinguish lights when ordered to do so by duly authorized authorities may result in loss of life by thousands of the residents of the City of ———— as well as the residents of other parts of the Nation when lights in this city are used as a guide to other objectives;

WHEREAS, failure to comply with orders, rules and regulations governing evacuations, traffic movements, congregation of persons in streets and other public places will result in confusion and unnecessary loss of life both during blackouts and during air raids in the daytime, now therefore,

Be it ordained by the Council of the City of ————:

SECTION 1. In order to protect life and property in the City of ———— from enemy action the Mayor (or the designated local Civil Defense Official) is authorized and directed to carry out blackouts and air raid protection measures in said city at such times and for such periods as are ordered by the Army or Navy and to promulgate such orders, rules, and regulations as may be necessary to insure the success of the blackouts and air raid protection measures and to protect life and property during said periods. *Provided* that said orders, rules and regulations shall include traffic movements of emergency or other vehicles, evacuation of residents, congregation of persons on public streets, sidewalks, in public places or buildings, but this enumeration shall not be taken as a limitation on the power to promulgate orders, rules, regulations governing any other subject, persons or property which must be regulated in order to insure the proper carrying out of any duly autorized blackout or air raid protection measure. thorized backout or air raid protection measure. *Provided further,* that practice blackouts and air raid drills may be carried out with the approval of the Army or Navy and the orders, rules and regulations authorized herein may include the orders, rules and regulations necessary for the carrying out of such practice blackouts or air raid drills.

SECTION 2. All orders, rules and regulations authorized by this ordinance for the conduct of the general public shall be in writing and shall be available for public inspection at the place and during the hours fixed by the Mayor (or designated local Civil Defense Official).

SECTION 3. Any order, rule or regulation promulgated pursuant to the authority conferred by this ordinance shall be in force and effect from the time of promulgation until amended or repealed by the Mayor (or head of the local Civil Defense Council) or until repealed by the Council of the City of ————.

SECTION 4. The Mayor may appoint for a specified time as many special police, without pay, from among residents of the City of ———— as may be deemed advisable for service in connection with any blackout or air raid protection measure. During the term of service of such special police, they shall possess all the powers and privileges and perform all the duties of privates in the standing police force of the City of ————. Said special police must wear such identifying emblem as may be prescribed by the Mayor and it shall be unlawful for any said special policeman to attempt to carry out any order, rule, or regulation promulgated under the authority conferred by this ordinance when he is not wearing said identifying emblem.

SECTION 5. This ordinance is an exercise by the city of its governmental functions for the protection of the public peace, health, and safety and neither the City of ———— or any individual subject to regulations lawfully intcluded herein or promulgated pursuant to authority herein conferred shall be liable for any damage sustained to person or property during, or as the result of, an authorized blackout or air raid protection measure.

SECTION 6. When deemed necessary in order to protect life or property during a blackout or air raid the police, or the special police authorized herein, are authorized and directed to enter upon any premises within the City of ———— and extinguish lights or take other necessary action to make effective any order, rule, or regulation promulgated under the authority conferred by this ordinance.

SECTION 7. At all times when the orders, rules and regulations made and promulgated pursuant to this ordinance shall be in effect, they shall supersede all existing ordinances, orders, rules and regulations insofar as the latter may be inconsistent therewith.

SECTION 8. Any person, firm or corporation violating any of the provisions of this ordinance or any order, rule or regulation issued pursuant thereto shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not exceeding Five Hundred ($500.00) Dollars or imprisonment for not more than six months, or by both said fine and said imprisonment.

SECTION 9. It is the intention of the City Council that each separate provision of this ordinance shall be deemed independent of all other provisions herein, and it is further the intention of the City Council that if any provision of this Act be declared to be invalid, all other provisions thereof shall remain valid and enforceable.

SECTION 10. This ordinance is necessary for the immediate preservation of the public health, peace, and safety of the residents of the City of ————, in that it is in the furtherance of the public welfare that immediate steps be taken to enforce blackout and other regulations, and an emergency is therefore declared to exist and this ordinance shall be in force and effect from and after its passage by the Council.

Adopted this ——— day of ————, 194———.

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Investigate %Proportioneers% Dual Drive (gasoline engine or electric motor) Emergency Chlor-O-Feeders for:

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STANDBY CHLORINATION—to augment gas chlorinators during emergency overload periods or to replace them during repairs.

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2. **ANY PRESSURE UP TO 175 LBS.—*no booster pump required.***
3. **PORTABLE—LIGHT—EASY to HANDLE—See photos.**
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Dual Drive Chlor-O-Feeders provide complete chemical feeding emergency protection for water works. Don't put all your eggs in one, *expensive*, basket; have *several* of these versatile emergency chlorinators on hand. Act now while there is time.

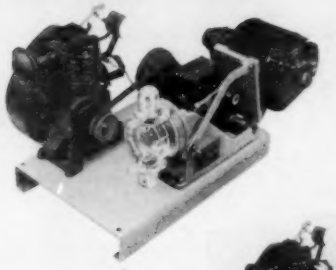

Fig. 1—Heavy-Duty Dual Drive Chlor-O-Feeder for pressures up to 85 lbs.

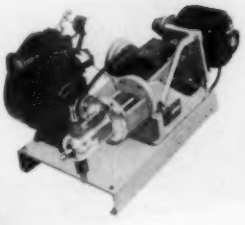

Fig. 2—High Pressure Unit for pressures up to 175 lbs.

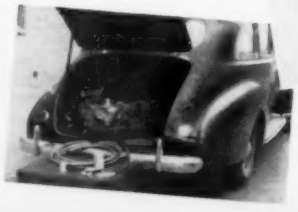

Fig. 3—Portable Emergency Unit fits easily in trunk of car.

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for

WATER-WORKS OPERATORS

★ ★

The Maine Water Utilities Association offers a collection of papers on the general subject of Defense Training for Water-Works Operators.

These papers were presented at a Defense Training School program in the Spring of 1941 and include something about almost every phase of water-works operation in war times or in peace-time emergencies. Much of the experience was drawn from the 1938 hurricane and from the 1936 floods. Some is from actual observations of conditions in wartime England.

PARTIAL CONTENTS

The General Problem of Water Works Protection, by E. Sherman Chase, Metcalf & Eddy.
Effects of Sabotage on Utility Plants, by Frank E. Southard, Chairman, Public Utilities Commission
Water Sources and Supply Lines, Protection, by Professor Thos. R. Camp, Mass. Inst. of Technology
Water Distribution Systems in War Emergencies, by Professor George E. Russell, Mass. Inst. of Technology
Water Supply for Fire Protection, by P. C. Charnock, Chief Engineer, N. E. Insurance Exchange
Quick Repairs and Stock Supplies, by Milton Thorne, Superintendent, Portland Water District
English Experiences in War Emergencies, by Harry U. Fuller, Chief Engineer, Portland Water District
Emergency Equipment for Sterilization, by Henry Armbrust, Proportioneers, Inc.

These papers are published as a text book of water-works operation. We believe that no more complete discussion of the problems of the water-works operator has ever been published.

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Municipal and Civic Publications

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Water Supply

Defense Training for Water Works Operators.—Papers Collected, Edited and Published by Maine Water Utilities Association (Sidney S. Anthony, Editor), 12 Williams St., Augusta, Maine. 1941. 158 *pp.* $1.00.

Published in this special edition of the Journal of the Maine Water Utilities Association, are 18 papers which were delivered at the Engineering Defense Training program conducted last spring by the Maine Water Utilities Association. They discuss protection against all types of damage to water plants, and the emergency use of water supplies. Containing a well-rounded presentation of the problems of the water-works operator, the collected papers serve also as a text-book of water-works operation.

New Jersey Water Supply

Report of the Special Committee on Water Supply to the Senate and General Assembly.—New Jersey State Legislature, Trenton, N. J. 1941. 46 *pp.*

Analysis of the water-supply problem of the state of New Jersey, with a recommended plan and legislation for its solution.

Chambers of Commerce

NACOS Proceedings, Twenty-Seventh Annual Meeting of the National Association of Commercial Organization Secretaries, Los Angeles, Calif., Oct. 19-22, 1941.—Apply to the Assistant Secretary-Treasurer, 1615 H Street N. W., Washington, D. C. 307 *pp.*

Problems and activities of commercial organization secretaries, presented in talks and discussion groups at the NACOS conference, dealing with such subjects as the chamber of commerce and defense, community advertising and new industries, airports, budgets, civic development, and legislative activities. Groups sessions on the problems of cities of four different population sizes are reported.

City Development and Construction.—Construction and Civic Development Department, Chamber of Commerce of the United States, Washington, D. C. 1941. 11 *pp.*

Activities which a chamber of commerce may carry on in the field of city development and construction, with particular attention to procedures applying to community defense problems created by the building of munitions plants, of defense housing and the accompanying utilities, and by the shifts in families which the armament program involves.

Popular Housing Discussion

Can America Build Houses?—By Miles L. Colean. Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York. Public Affairs Pamphlet, No. 19 (revised). 1941. 31 *pp.* 10c.

Revised edition, bringing up to date this popular presentation of the housing problem—its roots and reasons, what has been done to remedy it, and what remains to be done. A simple, brief discussion, which does not, however, oversimplify the various aspects of the problem, or talk down to the reader.

Taxation of Municipal Securities

Taxing Municipals by Federal Statute—The Real Issue.—The Conference on State Defense, 111 Eighth Ave., New York. 1941. 25 *pp.*

A discussion of the question of Federal taxation of municipal bonds, its relation to home rule, and its implications for the process of democracy, given by Austin J. Tobin, Assistant General Counsel of The Port of New York Authority, and Secretary of the Conference on State Defense, at the 30th Annual Convention of the Investment Bankers Association, Hollywood, Florida, December 4, 1941.

Sewage-Treatment Plant

Fort Wayne Treatment Works and Sewer System.—Dedicated to the Citizens of Fort Wayne, Ind., by Contractors and Manufacturers Who Cooperated in the Building of the Fort Wayne Sewage Treatment Works and Sewer System. Apply to L. R. Mathews, Superintendent, Sewage Treatment Works. 1941. 48 *pp.*

A popular, readable story of Fort Wayne's new sewage-disposal plant, written as a dedication souvenir, telling of efforts to obtain the plant, and describing its construction, design and workings, with many action photographs.

Chicago Airports

Airport Program for Chicago and the Region of Chicago.—Prepared by Special Committee Representing Chicago Association of Commerce, Chicago Plan Commission, Chicago Regional Planning Association, for Consideration by the Above Organizations and for Public Information. 1941. 17 *pp., photo offset.*

A well-presented report, with color maps, which presents in three parts: the need for airports in the Chicago region; a master plan for major air terminals and inner and outer belt airports, secondary airports, and possible minor airports in the region, to be carried out from now to 1960; and a consideration of access to major air terminals.

Building Codes

Adoptions of the A.I.S.C. Standard Specification.—American Institute of Steel Construction, 101 Park Ave., New York. 1941. 21 *pp.*

This pamphlet notes the number of cities and other governmental bodies that have adopted or permit the use of the A.I.S.C. standard specification.

Park and Recreation Laws

Digest of Laws Relating to Local Parks and Recreation, as of January 2, 1940.—By Roy A. Vetter, Associate Attorney, National Park Service, Department of the Interior, Washington, D. C. Civilian Conservation Corps, Federal Security Agency. Apply to Supt. of Documents, Washington, D. C. xix+534 pp. $1.00.

Summaries of the laws of the states and territories, having to do with local parks and recreation, arranged according to states and subjects, and including citations.

State Legislation

State Law Index, 1939-1940.—Legislative Reference Service, The Library of Congress, Washington, D. C. Apply to Supt. of Documents, Washington, D. C. Eighth Biennial Volume, 1941. vii + 707 pp. $1.50.

Index of 12,608 general and permanent laws, and temporary emergency laws, passed by state legislatures during 1939 and 1940. Arranged according to subject and state, with elaborate cross references, each citation gives state, year, date of approval by governor, page, and chapter of act.

Public Welfare

Proceedings of the National Conference of Social Work, Atlantic City, N. J., June 1-7, 1941.—Published for the National Conference of Social Work by Columbia University Press, New York. xi + 787 pp. $5.00.

Sixty-four papers selected from more than 150 that were given at the National Conference of Social Work, covering national defense; labor; social security; migration; civil liberties; refugee children; case work; relief; children; delinquency; the aged; the handicapped; health; the legal basis of administration; social insurance; community organization; the role of the board member; the theory and practice of social action; interpretation of social work.

Post-War Economy

Guides for Post-War Planning.—National Planning Association, 1721 Eye St., Washington, D. C. Planning Pamphlet No. 8, November, 1941. 31 pp. 25c.

A summary of current thinking by many individuals and groups on post-war economic problems and policies. Intended as a framework for future discussion, this pamphlet will be followed by others discussing in more detail problems briefly sketched here: the market-guarantee program; a government-investment program; the maintenance of decent living standards; labor; the agriculture program; the complications of national defense; and the international scene.

National Transportation Problems

Transportation and Defense.—By Joseph L. White, Consultant, National Resources Planning Board. Lectures, 1941. The Edward Eugene Loomis Foundation, Lafayette College. University of Pennsylvania Press, Philadelphia, Pa. 1941. *xii + 91 pp.* $1.50 *from* THE AMERICAN CITY.

This small book has a large scope. It surveys the transportation facilities of the country and the whole transportation situation in its various aspects, in relation to problems of national defense. The first three chapters cover railroad transportation and particularly regulation of the railroads in connection with the defense program; highway transportation; and inland transportation by waterway, pipe line, and airway. The fourth chapter discusses arguments for and against the St. Lawrence Waterway.

Data on City Services

The New York State Bureau of Municipal Information, Albany, New York, has collected data on three types of municipal services and facilities in New York cities and towns:

Removing Snow from Sidewalks.—1941. 16 *pp., mimeo.*

Methods and practices, including types and names of snow plows used, in removing snow from sidewalks in individual cities and villages of the state.

Number of Pieces of Fire Apparatus in Villages.—1941. 2 *pp., typewritten.*

Number of pieces of 7 types of fire apparatus owned by New York villages.

Spraying Shade Trees.—1941. 9 *pp., mimeo.*

Methods, practices, and charges in cities and villages.

Other Reports Received

ARLINGTON COUNTY, VA.—Plan and Report of Major Thoroughfares and Collector Streets. Arlington County Planning Commission. 1941. 67 pp.

BROOKLINE, MASS.—Second Annual Report of a Study of Advanced Programming & Budgeting. By a Special Committee of the Town of Brookline. 1941. 16 pp., photo offset.

CHAMPAIGN COUNTY, ILL.—Urgent County-Wide Planning Needs in Champaign County, Ill. Regional Planning Commission. 1941. 16 pp.

CONCORD, N. H.—Annual Report, Board of Water Commissioners, 1940. 20 pp.
—Industrial Advantages of a Concord Location—An Economic Survey. City Planning Board. 1941. 66 pp.

COOK COUNTY, ILL.—Annual Message of Clayton F. Smith, President, Board of Commissioners, and Board of Forest Preserve Commissioners. 1941. 224 pp.

DETROIT, MICH.—Annual Report, Auditor General, year ended June 30, 1941. 141 pp.

EASTON, PA.—Annual Report, 1940. 51 pp.

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JUST as Harley-Davidson Motorcycles with their power, stamina and dependability play a vital part in the hard-hitting motorized divisions of the U. S. Army — so they are performing major service for the nation's police departments. By making their man-power more effective, Harley-Davidson Police Motorcycles enable departments in hundreds of cities to cope with the increased demand for protection of war industries. They are also solving the many new problems of traffic control created by thousands upon thousands of additional cars and trucks transporting workers and materials.

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DETROIT, MICH.—Annual Report, Auditor General, year ended June 30, 1941. 141 pp.

EASTON, PA.—Annual Report, 1940. 51 pp.

GREENSBORO, N. C.—Municipal Activities, year ended June 30, 1941.

HOUSTON, TEXAS.—Digest of the Traffic Rules of Houston. 1941. 16 pp.

IRVINGTON, N. J.—Annual Report, 1940. 101 pp.

MILWAUKEE, WIS.—Annual Review, Board of Public Land Commissioners, 1940. 11 pp., mimeo.

NEW ORLEANS, LA.—Annual Report, City Planning and Zoning Commission, 1940. 39 pp., multi.

NEW YORK.—Annual Report, State Planning Council for the Division of State Planning, year ended April 30, 1941.

—Index of statistical Data Available in New York State Departments. Bureau of Planning, New York State Division of Commerce. 1941. 107 pp.

OAKLAND, CALIF.—Auditor's Annual Report, year ended June 30, 1941. 36 pp.

PALO ALTO, CALIF.—Annual Report, year ended June 30, 1941. 135 pp.

PASADENA, CALIF.—Annual Report, City Controller, year ended June 30, 1941. 96 pp.

—Annual Report, Water Department, year ended June 30, 1941. 69 pp.

PITTSBURGH, PA.—Annual Report, Bureau of Fire, 1940. 27 pp., mimeo.

PORTLAND, ORE.—Civic Review, 1940-41.

QUEBEC, CANADA.—Municipal Statistics, 1940. 275 pp.

SAN MATEO, CALIF.—Annual Report, 1940.

STRATFORD, CONN.—Report on Municipal Activities, year ending Mar. 31, 1941. 142 pp.

VIRGINIA.—Protecting Our Roadsides for Permanency. 1941. 4 pp., 9 pp., multi.

WAUKESHA, WIS.—Annual Report, City Engineer, 1940. 44 pp., mimeo.

WINNETKA, ILL.—Annual Report, year ending Mar. 31, 1941. 47 pp.

Trailer and Tourist Camps—Excerpts from Zoning Ordinances. 1941. 10 pp., mimeo.

Emergency Equipment for Sterilization and Its Application.—By Henry N. Armbrust, Manager, Proportioneers, Inc., Providence, R. I. Reprinted from Defense Training for Water Works Operators (see review on p. 109). Published by Maine Water Utilities Association, Augusta, Maine. 1941. 158 pp.

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Airports

Airport Design Information.—Prepared for the Instruction and Guidance of the Airport Division Engineers in Their Field Consultation Activities. Airport Division, Civil Aeronatics Administration, Department of Commerce, Washington, D. C. 1941. 60 pp.

Elementary considerations in the study of airport-site selection, and in the design, planning, and construction of the airport.

Air-Raid Defense

Air-Raid Defense (Civilian).—By Curt Wachtel, Pharmacological Section of Kaiser Wilhelm Institute. Chemical Publishing Co., Inc., Brooklyn, N. Y. 1941. xiii + 240 pp. $3.50.

Covers planning and organization for air-raid defense, technical defense, and services for the protection of the public.

Civil Air Defense—A Treatise on the Protection of the Civil Population against Air Attack.—By Augustin M. Prentiss, Lieutenant Colonel, General Staff Corps., United States Army. 1941. Whittlesey House, New York. xv + 34 pp. $2.75.

The fine points of protection against all types of explosives, incendiaries, and gases.

Air-Raid Precautions.—Reprinted by Permission of the Controller of His Britannic Majesty's Stationery Office, by the Chemical Publishing Co., Inc., Brooklyn, N. Y. First American Edition, 1941. 48 pp. $3.00.

Ten sections on air-raid precautions, compiled by British experts, and based on actual experiences during air raids.

Disaster Relief

A Major Disaster Emergency Plan.—The Educational Committee in Cooperation with The Committee on General Disaster Emergencies, International Association of Fire Chiefs, 24 W. 40th St., New York. 1940. 49 pp. 15c.

Suggestions for a Major Disaster Emergency Plan for cities to prepare in case of any possible disaster.

Disaster Preparedness and Relief.—The American National Red Cross, Washington, D. C. 1941. 111 pp.

Manual for local Red Cross chapters.

Finance

Effect of Defense on Municipal Finance.—The August, 1941, issue of "Municipal Finance," published by the Municipal Finance Officers' Association of the United States and Canada, 1313 E. 60th St., Chicago, Ill. 32 pp.

Problems confronting local finance as a result of the defense program.

Fire Protection

Fire Defense.—Edited by Horatio Bond, Chief Engineer, National Fire Protection Association, 60 Batterymarch St., Boston, Mass. 1941. x + 221 pp. $1.50.

A compilation of available material on fire defense, in six main parts.

Suggestions for State and Local Fire Defense.—Fire Defense, Bulletin No. 1, Prepared by the Advisory Committee on Fire Defense, Division of State and Local Cooperation, Office for Emergency Management, Washington, D. C. Apply to Supt. of Documents, Washington, D. C. vii + 27 pp. 10c.

Points to be considered in setting up a fire-defense organization—for civilian protection, and to prevent stoppage or delay of productive activities by fire.

Fire from the Air—the ABC of Incendiaries.—By J. Enrique Zanetti. Columbia University Press, New York. 1941. 55 pp., 4 x 6½ in. 50c.

Condensed popular discussion of incendiaries.

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Bibliography on National Defense

The accompanying list includes a selection of books and pamphlets published in the closing weeks of 1941, and of others listed in* THE AMERICAN CITY *during the last two years, which have added importance now because of the entry of the United States into the world war.

***Requests for reports and pamphlets should be sent to the addresses indicated. Books may be ordered, if desired, of* THE AMERICAN CITY.**

City Government in Wartime

Cities and the National Defense Program.—By Arnold Miles and Roy H. Owsley. American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1941. vi + 73 pp. $1.00.

Developments which have occurred as a result of defense activities in every size of city and in all parts of the country; and a consideration of unsolved problems and their proper solution.

City Problems and Defense, 1941—The Proceedings of the St. Louis Regional Conference of the United States Conference of Mayors, St. Louis, Mo., Feb. 20-21, 1941.—Edited by Paul V. Betters, Executive Director, The United States Conference of Mayors, 730 Jackson Place, Washington, D. C. 94 pp. $3.00.

British Cities at War.—By James L. Sundquist for the American Municipal Association, Public Administration Service, 1313 E. 60th St., Chicago, Ill. 1941. vi + 110 pp. $1.00.

Problems faced by British municipal officials in time of war, and how they have been met; effect of active warfare on British cities both bombed and not bombed.

The British Defense Program and Local Government.—By Don K. Price and James L. Sundquist, for the American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1940. 56 pp. 75c.

Description of the effect of a national defense program, rather than of active warfare, on municipal activities and personnel.

Administration and Organization in Wartime in the United States: a Bibliography.—Compiled by Dorothy Campbell Culver, Research Assistant, Bureau of Public Administration, University of California. Apply to Public Administration Service, 1313 E. 60th St., Chicago, Ill. 1940. 17 pp. 50c.

Selected list of the more important publications on administration and organization in wartime.

Civil-Military Relations.—Prepared for the Committee on Public Administration of the Social Science Research Council, under the direction of Pendleton Herring, Secretary of the Graduate School of Public Administration, Harvard University. Apply to Public Administration Service, 1313 E. 60th St., Chicago, Ill. 1940. vi + 78 pp.

Brief summaries of publications dealing with administrative problems of civilian mobilization.

A Priorities Guidebook for Municipal Officials.—By Ronald M. Ketcham and Roy H. Owsley. The American Municipal Association, 1313 E. 60th St., Chicago, Ill. viii + 36 pp. $1.00.

The priorities system as it affects municipalities.

National Defense and Municipal Legal Problems—Report No. 71.—Prepared by Charles S. Rhyne, Executive Director. National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C. 1941. iv + 68 pp. $2.00.

Legal problems confronting cities as a result of the sweep of defense activities. Including model ordinances, acts and other measures.

Defense Training for Public Employees—The Status of In-Service Training Programs.—American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1940. 68 pp. $1.00.

A survey of the status of present public-service defense training programs, and recommendations for future policy and programs, at Federal, state, and local levels.

Civilian Defense

Pamphlets published during 1941 by the Office of Civilian Defense, Washington, D. C.:

Air-Raid Warning System. 18 pp.

Blackouts. 60 pp.

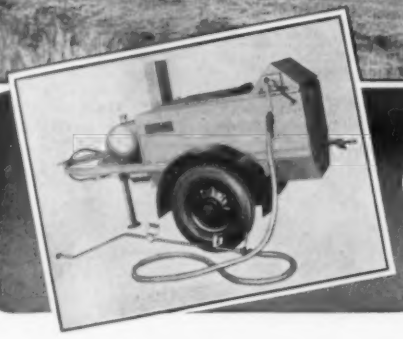
A Civilian Defense Volunteer Office—What It Is, How It Is Set Up, What It Does, How to Organize It. 35 pp.

Emergency Medical Service for Civilian Defense. 9 pp.

A Handbook for Air-Raid Wardens. 27 pp.

Equipment & Operation of Emergency Medical Field Units. 15 pp.

Do You Want the Safest?



The 84-HD Kettle is the Safest Kettle on the market. Made by Littleford Bros., whose experience in making Tar and Asphalt Heating Equipment for Road Maintenance dates back to 1900. Experience in the problems of kettle users has added patented features to the 84-HD, making it the fastest heating and Safest Kettle to use.

BLACK TOP ROAD MAINTENANCE EQUIPMENT LB SINCE - 1900

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500 E. Pearl St., Cincinnati, Ohio

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☆ Cities all over the country are losing some of their top administrators to the federal and state governments and to defense industries. Unless there are trained replacements for these key men, city governments will be seriously crippled. If you are a department head, you owe it to your city to train an "understudy" for your job. If you are a junior administrator, now is the time to prepare for advancement.

Enroll now in one of these ten practical correspondence courses:

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- Municipal Finance Administration
- Municipal Police Administration
- Municipal Recreation Administration
- Local Welfare Administration
- Municipal Personnel Administration
- Municipal Public Works Administration
- Municipal Fire Administration
- Local Planning Administration
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☆ Special texts have been prepared for administrators on the job. Lesson papers are reviewed by leading authorities in each field. The $35 fee for each course covers the text, individualized lesson instruction, and a certificate upon satisfactory completion of the work. The text alone sells for $7.50 a copy—$65 for a complete set. For use in group training projects, in lots of five or more, the price is $6 a copy.

There are now more than 700 public officials enrolled in these courses in nearly 300 cities in 42 states.

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INSTITUTE FOR TRAINING IN MUNICIPAL ADMINISTRATION
1315 EAST 60TH STREET CHICAGO

WARREN 4"-16" Spun CENTRIFUGAL C. I. PIPE

The above picture was snapped showing the method of handling this superior pipe. *Write for our new catalog describing WARREN SPUN CENTRIFUGAL PIPE.* Warren has cast iron pipe in sizes 2 in. to 84 in. to meet your every need; *specializes in THREADED CAST IRON PIPE* for filtration systems, golf links, sprinkler systems, etc., sizes 1½ in. to 12 in. *and invites your inquiries.* Also has the finest of special castings, bell and spigot, flange, flexible joint, culvert, milled and plain end tubes, cylinders, flanged and bell spigot fittings, high-pressure fire service pipe and WARREN Short Body Specials.....Write for catalogs.

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Enrolled Volunteer Worker Groups for Civilian Protection. 11 pp.

Local Organization for Civilian Protection. 11 pp.

Municipal Signaling Systems.—Including Specifications for Emergency Electrical Power Equipment.—Prepared by Defense Communications Board. 24 pp.

Protection against Gas. 75 pp.

Protection of Industrial Plants and Public Buildings. 8 pp.

Protective Construction.—Structures Series, Bulletin No. 1. 36 pp.

Report of Bomb Tests on Materials and Structures—Memorandum on Protective Construction. 55 pp.

What School Teachers and Pupils Should Do During an Air Raid. 1 p., 22 x 17 in.

What to Do in an Air Raid. 8 pp.

Bulletins No. 1-4.—Office of the Director, Civilian Defense, State Council of Defense, 444 Broadway, Albany, N. Y.

Covering organization and functions of civilian defense, and volunteer defense units; and the enrollment, control, duties and training of air-raid wardens.

Manual for Regional Defense Councils.—Va.-Defense Council, Richm'd, Va. 1941. 241 pp.

Thirteen loose-leaf sections on different aspects of regional defense, of which THE AMERICAN CITY has received the following: Section I—General; Section II—Recreation; Section III—Health; Section V—Transportation—Highways, Rail, Water, Air; Section VIII—Education; Section IX—Major Disaster Emergency Plans; Section X—Agriculture; Section XI—Consumer Protection; Section XII—Organization, Personnel, Areas; Section XIII—Committee Organization.

Mimeographed bibliographies on municipal defense: Air-Raid Shelters, 8 pp.; *Defense Planning for Local Governments,* 3 pp.; *Public Protection in Defense Plans,* 4 pp.; *Health in a National Defense Program,* 20 pp.; *The Protection of Electric and Water Utilities During Wartime,* 4 pp.; *Recreation and National Defense,* 3 pp.; *Mass Transportation in Relation to National Defense,* 20 pp.—Compiled by the Municipal Reference Library, Los Angeles, Calif. 1941.

Defense Housing

Housing for Defense: The Factual Finding, by Miles L. Colean; *The Program,* by The Housing Committee. The Twentieth Century Fund, 330 W. 42d St., New York. 1940. xx + 198 pp. $1.50.

Conclusions and recommendations for a public policy and program of action for defense housing, by an impartial committee of housing experts, based on extensive factual findings.

Homes for Defense.—A Statement of Function. Division of Defense Housing Coordination, Office for Emergency Management, Executive Office of the President, Washington, D. C. 1941. 35 pp.

Brief statement of the work of the Division of Defense Housing Coordination, and its relation to other housing agencies.

Guide to the Organization and Operation of Homes Registration Offices.—Division of Homes Registration, Division of Defense Housing Coordination, OEM, Executive Office of the President, Washington, D. C. Revised, 1941. 44 pp.

Housing for Defense.—By R. J. Thomas, President, International UAW-CIO, Chairman, CIO Housing Committee. International Education Department, 281 W. Grand Boulevard, Detroit, Mich. 1941. 64 pp. 10c.

Defense housing from labor's point of view—labor's needs, and what labor can do about them.

Defense Housing Digest (and Addendums)—A Summary of Laws, Regulations, and Results.—National Association of Housing Officials, 1313 E. 60th St., Chicago, Ill. 1940. 32 pp. $1.00.

A compilation of legislation and administrative rulings relative to defense housing, covering a period of about a year, with results and comments.

Emergency Rent Control and the National Defense Program.—National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C. 1941. 20 pp. $1.00.

A brief review of rent control during the first World War, and a model "Emergency Fair Rent Act."

Police

Mobilizing Police for Emergency Duties—A Program for State and Local Governments.—By Bruce Smith. Institute of Public Administration, 261 Broadway, New York. 1940. 19 pp.

Suggestions for police mobilizaton based on materials collected during participation in mobilization programs developed by New York, Virginia, and New Jersey.

Recreation

Recreation for Defense.—Prepared by the Division of Recreation, Office of Defense Health and Welfare Service, Federal Security Agency, Washington, D. C. 1941. 30 pp., mimeo.

Guide for Defense Recreation Committees in non-defense communities, in industrial-defense communities, and in training-camp communities, telling what volunteers can do, and how to select, train, and supervise them.

Trailer Regulation

Automobile Trailer and Tourist Camps—Legal and Administrative Problems of Municipal Regulation, with an Annotated Model Ordinance.—Prepared by Charles S. Rhyne, Executive Director, National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C. Report No. 75. July, 1941. 34 pp. $2.00.

House Trailer Regulation.—Report No. 147, American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1941. 48 pp. $1.00.

Discussion of the various problems connected with trailer regulation, including recent city and state regulations and their litigation, and various model laws.

Transportation

Transportation and Defense.—See review on p. 109.

Water Supply

Defense Training for Water Works Operators.—See review on p. 109.

Conventions—When and Where

January 12-14.—Washington, D. C.
UNITED STATES CONFERENCE OF MAYORS. (Mayflower Hotel.) Exec. Dir., Paul V. Betters, 730 Jackson Place, N. W., Washington.

***January 25-24.—New York City.**
AMERICAN INSTITUTE OF PLANNERS. (Hotel Governor Clinton.) Exec. Sec., Robert S. Russell, 1313 E. 60th St., Chicago, Ill.

February 16-18.—Indianapolis, Ind.
ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC. (Claypool Hotel.) M'ng Dir., H. E. Foreman, 222 Munsey Bldg., Washington, D. C.

February 18-20.—Ann Arbor, Mich.
CONFERENCE ON HIGHWAY ENGINEERING. (Michigan Union.) Sec., R. L. Morrison, Univ. of Michigan, Ann Arbor, Mich.

February 21-26.—San Francisco, Calif.
AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS. Sec., S. D. Shankland, 1201 16th St., N. W., Washington, D. C.

***February 24-27.—Wichita, Kans.**
SOUTHWEST ROAD SHOW AND SCHOOL. (Municipal Exposition Bldg.) Mgr., F. G. Wieland, 225 S. Water St., Wichita, Kans.

February 25-27.—Philadelphia, Pa.
ASSOCIATION OF HIGHWAY OFFICIALS OF NORTH ATLANTIC STATES. (Benjamin Franklin Hotel.) Sec.-Treas., A. Lee Grover, State Highway Dept., Trenton, N. J.

***March 2, Week of.—Memphis, Tenn.**
AMERICAN ROAD BUILDERS' ASSOCIATION. (Peabody Hotel.) Engr.-Dir., Charles M. Upham, 953 International Press Bldg., Washington, D. C.

March 5-6.—Trenton, N. J.
NEW JERSEY SEWAGE WORKS ASSOCIATION. (Stacy-Trent Hotel.) Sec., John R. Downes, Plainfield, N. J.

***April 9-10.—Lafayette, Ind.**
AMERICAN WATER WORKS ASSOCIATION—INDIANA SECTION. (Purdue Memorial Bldg.) Sec., H. G. Horstman, 603 Traction Terminal Bldg., Indianapolis, Ind.

***April 14-16.—St. Louis, Mo.**
MISSOURI ASSOCIATION OF PUBLIC UTILITIES. (Jefferson Hotel.) Asst. Sec., Jesse Blythe, 101 W. High St., Jefferson City, Mo.

***April 15-17.—Niagara Falls, Ont.**
AMERICAN WATER WORKS ASSOCIATION—CANADIAN SECTION. Sec., Dr. A. E. Berry, Dept. of Health, Parliament Bldg., Toronto, Ont.

***April 20-22.—Savannah, Ga.**
AMERICAN WATER WORKS ASSOCIATION—SOUTHEASTERN SECTION. *Sec.*, B. P. Rice, Reconstruction Finance Corp., Healey Bldg., Atlanta, Ga.

April 27-30.—Washington, D. C.
CHAMBER OF COMMERCE OF THE UNITED STATES. Sec., Ralph Bradford, 1615 H St., N. W., Washington, D. C.

***May.—Grants Pass, Ore. (Date later.)**
LEAGUE OF OREGON CITIES. (Redwoods Hotel.) Sec., Herman Kehrli, Univ. of Oregon, Eugene, Ore.

May.—Indianapolis, Ind. (Date later.)
NATIONAL CONFERENCE ON PLANNING. Joint annual conference of American Society of Planning Officials, American Institute of Planners, the American Planning and Civic Association and the National Planning Association. Conference Dir., Walter H. Blucher, 1313 E. 60th St., Chicago, Ill.

May 7-9.—Walla Walla, Wash.
AMERICAN WATER WORKS ASSOCIATION—PACIFIC NORTHWEST SECTION. (Marcus Whitman Hotel.) Sec., Fred Merryfield, Oregon State College, Corvallis, Ore.

May 13-16.—Toledo, Ohio.
AMERICAN WATER WORKS ASSOCIATION—OHIO SECTION. Sec., T. R. Lathrop, State Dept. of Health, Columbus, Ohio.

May 17-20.—Cleveland, Ohio.
SMOKE PREVENTION ASSOCIATION. Sec., Frank A. Chambers, City Hall Square Bldg., Chicago, Illinois.

May 20-23.—Hollywood, Calif.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Sec.-Treas., George F. Breitbach, Court-House, Milwaukee, Wis.

May 24-27.—Philadelphia, Pa.
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. (Benjamin Franklin Hotel.) Sec.-Treas., H. A. Fritschman, Upper Darby, Pa.

June 10-13.—Los Angeles, Calif.
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. (Biltmore Hotel.) Dir., Coleman Woodbury, 1313 E. 60th St., Chicago, Ill.

June 21-23.—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION. (Stevens Hotel.) Sec., Harry E. Jordan, 22 E. 40th St., New York.

June 28-July 2.—Denver, Colo.
NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES. Exec. Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

August 24-26.—State College, Pa.
PENNSYLVANIA WATER WORKS OPERATORS' ASSOCIATION. Sec.-Treas., I. M. Glace, 22 S. 22d St., Harrisburg, Pa.

***September 15-18.—Poland Spring, Maine.**
NEW ENGLAND WATER WORKS ASSOCIATION. (Poland Spring House.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

***October 13-17.—Cleveland, Ohio.**
FEDERATION OF SEWERAGE WORKS ASSOCIATIONS. (Statler Hotel.) Exec. Sec., W. H. Wisely, Box 18, Urbana, Ill.

*First appearance of notice on this page.

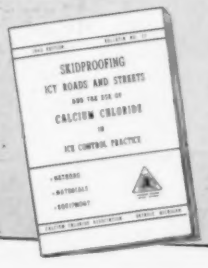
Because **1 LOAD GOES 3 TIMES AS FAR!**

It's an actual fact that highway officials who treat their ice control abrasives with calcium chloride get sand or cinders free! For every load of treated grits spreads 3 times as far as untreated materials, stops cars quicker, and provides long-lasting protection, since every particle digs into the ice and stays put *at any temperature.*

The advantages of calcium chloride treatment are reflected in other important ways, too. A saving of at least two-thirds is made in the labor, time and equipment required for stockpiling, loading and spreading. A single spreading operation is usually all that is needed, because the grits are anchored in the icy surface and are not thrown into ditches by traffic or wind. And from the standpoint of highway safety, calcium chloride treatment of abrasives speeds every ice control operation — from the time the grits are placed in stockpiles until they are doing service under the wheels of traffic.

Write today for more details on this standard method of making highway ice control most effective at lowest cost.

CALCIUM CHLORIDE ASSOCIATION
4145 Penobscot Bldg. • Detroit, Michigan



FREE!
NEW BULLETIN ON ICE CONTROL

Latest data on low cost ice control methods will help you in your winter work. Send for it today.

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4145 Penobscot Bldg., Detroit, Mich.
Please send me new Ice Control Book.
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Address_____
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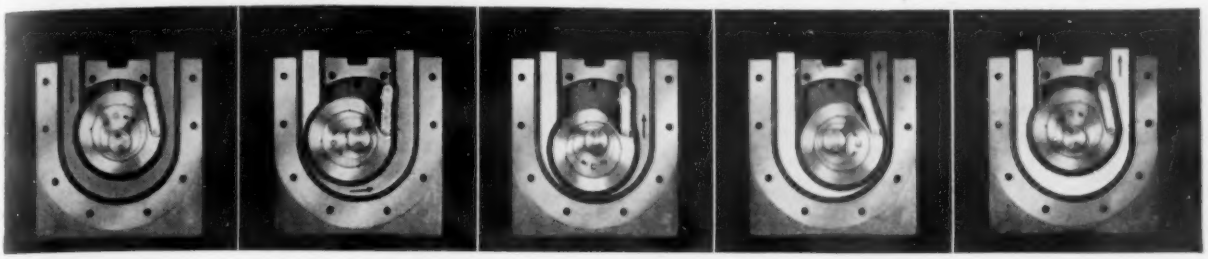
CALCIUM CHLORIDE
MAKES ICY ROADS SAFER
SAVES UP TO $6.00 A MILE EACH TREATMENT
FAST • POSITIVE • ECONOMICAL

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings



The cycle of operation of the Downington-Huber Squeegee type pump. The five sectional views show, from left to right, neutral position, quarter cycle, half cycle, three-quarter cycle, and full cycle

New Chemical Pump Works Like Squeegee

A pump designed particularly for use with chemicals, in that it has complete rubber protection against corrosion, has been announced by the Huber Pump Div., Downingtown Mfg. Co., Downingtown, Pa. Because this Downingtown-Huber pump is unlike a centrifugal, rotary, reciprocating, screw or diaphragm pump, it has been named a "Squeegee Type" pump. Briefly, it consists of a flexible rubber tube, which is alternately squeezed and released in a rocking, squeegee manner, so that the liquid chemical or gas is actually breathed into and out of the tube, being totally enclosed within the tube from the time it enters the pump until it leaves, so that it cannot come in contact with any metal part of the pump. The tube itself is made of pure gum rubber and various acid- and oil-resisting synthetic materials.

Solutions containing solids, whether abrasive or otherwise, cause practically no wear, since the inside of the tube is a smooth, continuous surface with no projections, corners, or crevices. The pump is noiseless in operation, due to the cushioning action of the tube between the moving and stationary parts. The manufacturer states that the Squeegee Pump has a high efficiency and a positive action with practically no slippage, and therefore may safely be used for accurate proportioning. It is particularly adaptable for use with highly corrosive chemicals, such as ferric chloride in the sewage treatment field and other solutions which cause trouble with the usual type of metal pumps. Complete information and a full description of this pump will be found in Bulletin No. 1041, which may be secured direct from the manufacturer by mentioning this item. These pumps are made in both single stage and double stage in capacities varying from 1.5 gpm to 75 gpm.

American Road Builders Association, Memphis, Tenn., March 2-6, 1942.

Cataphote Distributing Scotchlite Reflectors

The appointment of Western Cataphote Corporation, Toledo, Ohio, as distributor for Scotchlite reflecting material for highway markers, has been announced by William Searight, General Sales Manager of Cataphote. Scotchlite, a new product, is a flexible, fabricated reflecting material, available in white, yellow, and silver. Reflection is achieved through a precision surface coating of special glass polaroid lenses, designed to increase the reflecting power. It is recommended for use on warning signs and markers where long-distance visibility is essential.

White and yellow Scotchlite are used on traffic signs of secondary varieties, such as direction and informatory signs, where clear readability is the most important factor. Western Cataphote Corporation is known for its reflector buttons, which are used for all types of highway markers and signs.

Graybar Electric Co. Elects New Officers

The Board of Directors of the Graybar Electric Co., 420 Lexington Ave., New York, has announced the election of four new officers of the company, effective January 1. The newly elected President is A. H. Nicoll; and three new Vice-Presidents are G. F. Hessler, D. H. O'Brien, and E. W. Cashman. The former president, F. A. Ketcham, becomes Chairman of the Board, and the following Field Vice-Presidents continue in the same capacity: W. P. Hoagland, Chicago; W. J. Drury, New York; and A. L. Hallstrom, Philadelphia.

We are indebted to Malcolm K. Wright, Advertising Manager, Baldwin Locomotive Works, Philadelphia, Pa., for the cover design on this issue of THE AMERICAN CITY. This border design originally appeared on a 24-page booklet "The Baldwin Group in Production for Defense."

The Advertising Department of Caterpillar Tractor Co., Peoria, Ill. Seated, left to right: Bob Terhune, News Bureau; P. C. Smith, Asst. Adv. Mgr.; G. M. Walker, Adv. Mgr.; G. E. Wennerlyn, Asst. Adv. Mgr.; Perry Johns; Edythe Hoffman. Center row: Lois Gregory, Frances Meier, Ruth Brown, Florence McLaughlin, Marjorie Hockenbury, Mildred Lutticken, Frank Kirchner, Mabel Krauser, Dorothy Garriott, Teen Becksted. Top row: B. E. Brubaker, W. C. Kraus, Joe Serkowich, Julian Mills, Jerry Reichart, News Bureau; Ralph Lewis

Smooth riding comfort . . . combined with the longest life and lowest upkeep of any widely used pavement.

Always the least costly . . . now the best riding

A swift succession of important advances in brick pavement construction have followed each other throughout the past few years.

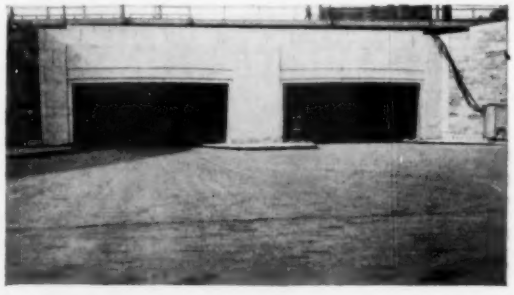
Result: Modern brick pavements are unexcelled in riding qualities.

There have been advances in technique such as surface filler removal and rolling on boards. There have been basic structural improvements such as the mastic cushion and manufacturing progress such as wire-cut vertical fibre wearing surfaces and de-airing.

Hence, modern brick is a streamlined version of the pavement type that has longest life and lowest maintenance.

This progress comes at a time when it is most useful. For now it is known that brick has by far the greatest resistance to weather damage—starting point of most pavement failures.

Today, modern brick is the perfect surface for any vehicles at any speed plus the lowest cost per year of service. Use it wherever a first-class pavement is called for. National Paving Brick Association, National Press Building, Washington, D. C.



Entrance to Queens-Midtown Tunnel — New York City

VITRIFIED BRICK
THE MOST SATISFACTORY PAVEMENT

The new Style 82 Dresser repair sleeve for broken pipe

Speedy Pipe Repairs with New Sleeve

Complete enclosure of a broken pipe in a pressure-type chamber is the feature of the new adjustable repair sleeve, Style 82, recently announced by the Dresser Mfg. Company, Bradford, Pa. It is designed to repair breaks, holes, and splits in straight runs of cast-iron pipe; is low in first cost; is adjustable to fit varying pipe diameters; and is reported permanently tight.

The new repair sleeve consists of three individual sections, each complete with one side-gasket and two end-gaskets assembled in place at the factory. The rectangular rubber-compound gaskets fit into a deep recess, preventing their coming out of position in storage or during installation. The three sections are assembled into a complete sleeve with six side-bolts, which are tightened to give full compression on all gaskets. An escape vent facilitates installation under pressure.

With this new repair sleeve, the diameter of the pipe to be repaired can be matched exactly. The three sections are assembled into one complete sleeve to obtain a close fit around the pipe. A "diameter-finding tape" included with each sleeve tells the combination of sections to use. The 4-inch sleeve has an adjustment range from 4.7 to 5.1 inches outside diameter, and the 6-inch sleeve a range from 6.8 to 7.2 inches.

Time studies under varying weather and ditch conditions have shown that one workman, with one wrench, can install one of these sleeves in 5 or 10 minutes. They are recommended for working pressures not exceeding 150 pounds per square inch.

Full details, illustrations, sizes, specifications, and prices will be found in Form 4111D, which will be sent promptly by the manufacturer to those mentioning this item.

Complete Line of Small Motors

The Wagner Electric Corp. has published a 34-page bulletin on small single-phase, polyphase, and direct-current motors. Without priorities, deliveries are said to run 14 to 16 weeks, while an A-10 may produce the motors out of stock.

Air compressors, such as those used at filling stations, are often operated in cold locations. The oil congeals in the compressor crankcase and may increase the load until it is double its normal value. For such applications the Wagner Electric Corp. produced the repulsion-induction motor which will carry any load it can start. Split-phase motors of 1/20 to 1/3 hp are used on unit heaters, oil burners, and small pumps where repulsion-start-induction motors are not necessary, as the starting torque is low, starting current high, and the cost less.

Capacitor-start induction-run motors of 1/8 to 3/4 hp are for small pumps, sprays, oil burners, stokers, refrigerators. Polyphase motors are available in 1/6 to 3/4 hp and in one to four speeds for use on fans, blowers, air compressors, tools, mixers, and agitators. Single-phase induction motors of 1/125 to 1/30 hp are built for fan use. Where flammable liquids or gases may be present, explosion-proof motors are available.

Direct-current motors are furnished to serve all the applications of the foregoing alternating-current motors.

For a copy of this new bulletin, address Wagner Electric Corp., 6400 Plymouth Ave., St. Louis, Mo., and ask for "Bulletin MU-183."

New Reflectors Increase Street Light Efficiency

The General Electric Co., Schenectady, N. Y., has announced that silvered glass reflectors will replace highly-polished aluminum reflectors in its pendent shielding-type street lights. This move, according to F. D. Crowther, Sales Manager of the Lighting Division, will conserve aluminum and produce an average increase of about 10 per cent in the efficiency of the luminaires. Other features of the luminaires will remain unchanged. These include "spun-sealed" construction, which makes the reflector and globe one unit and decreases globe breakage; reflector offsets, which eliminate destructive heat concentrations in the luminaires; and simplicity of design for easy maintenance.

Asked if the increased use of glass would not result in more breakage by mischievous youths, Mr. Crowther stated that experience proved this to be otherwise. Most globe breakage is due to chipping of the globe rim when the globe is being handled, either at the warehouse or while relamping the luminaire. These chips, under alternate conditions of heating and cooling, and vibration, extend through the globe and break it. By making the globe an integral part of the reflector, General Electric engineers have been able to reduce breakage considerably. As for the glass reflector, this is strongly reinforced by a copper-plated backing which clings so tightly that, even though the reflector is smashed, the pieces of glass will not fall.

Save LIVES with FEDERAL AIR RAID SIRENS

Tested and Proved in Europe!

Every city—every manufacturing plant should install efficient air raid warning sirens at once!

Federal Electric Company—the largest Siren manufacturer in the world is ready to help you!

Federal Air Raid Sirens have been proved under actual bombing conditions in Europe since 1938!

Write on official stationery, or wire for special air raid protection data telling how to plan, install and operate air raid warning sirens!

For earliest possible delivery ACT NOW!

FEDERAL ELECTRIC CO., INC.
"Siren Headquarters"
8744 South State Street, Chicago, Illinois

WHEN 80 TONS OF BOMBER LANDS

First take-off of world's largest bomber —the Douglas XB-19—from newly completed concrete runway at Clover Field, Santa Monica, California.

—*what happens to the runway pavement?*

Properly designed concrete runways can carry any weight of plane

Proved methods of design today enable engineers to design concrete pavements *as accurately for an 80,000-lb. bomber wheel load as for a 9,000-lb. highway wheel load.*

These methods, coupled with experience from the highway field, mean that adequate yet economical runways can be designed for any anticipated weight and volume of plane traffic. For equal load-carrying capacity at major airports, concrete runways will have *lowest first cost*—with neither expensive over-design nor wasteful under-design.

Important Safety Advantages, Too!

Even the slightest runway defect is a potentially serious matter with today's "hot" planes, intensive air operations and heavy emergency take-off loads. Concrete in addition to its all-weather load capacity assures adequate frictional resistance for braking ... good light reflection for night landing... freedom from dangerous loose particles on runways.

For safety and economy, specify concrete for major airports.

●

PORTLAND CEMENT ASSOCIATION
Dept. 1-4, 33 W. Grand Ave., Chicago, Ill.

A national organization to improve and extend the uses of concrete ... through scientific research and engineering field work

Change in Bender Warrick Firm Name and Address

The Bender Warrick Corp., manufacturer of floatless liquid level controls, motor starters, contactors, and special electric controls, has moved into a new plant located at 2200 East Maple Road, Birmingham, Mich., since the wide acceptance of B/W products has made larger manufacturing facilities necessary. Announcement has also been made that the name of this company has been changed from the Bender Warrick Corp. to the B/W Controller Corp. This change in name was made in order to identify the name of the company more easily with the products it manufactures.

There has been no change in management, the officers of the old Bender Warrick Corp. continuing in their same capacities with the new organization. The B/W Controller Corp. wishes to express its gratitude to all its customers whose adoption of B/W floatless controls has contributed to its success.

Electrical Equipment in Isolated Pumping Stations

The modern isolated water-pumping station is so completely automatic that the only attention it requires is infrequent readings, changing of charts, and some inspection. It takes electricity from the power line and transforms it, through the necessary protective devices, control, and motors, to operate the pumps and related equipment. A new booklet prepared by General Electric Co., Schenectady, N. Y., explains the place, function, and advantages of various essential items of electric equipment that should be included in the plans for any modern isolated water-pumping-plant project.

The booklet, "A Guide to Selecting Electric Equipment for Isolated Water-pumping Stations," opens with a drawing, which gives with striking simplicity a "bird's-eye view" of the wire-to-water set-up of a modern isolated pumping station, followed by photographs of the electrical equipment in use at the Sands Point, L. I., and Huntington, L. I., pumping stations. The booklet then proceeds with illustrated descriptions of transformers, protective equipment, lightning protection, motor, control panel, automatic devices and auxiliary equipment. These are followed by a section of helpful hints for preparing specifications, and a number of useful data for handy reference in testing motor and pump, calculating the size of electric heaters, motor wiring, power-factor improvement, etc. To obtain a copy of this booklet free of charge, request Filing No.8698 from General Electric Co.

New Solvent for Rust and Engine Gums

A new solvent which has proved of value in the internal combustion engineering field, because it may be added to the lubricating oils as an aid in preventing the deposit of gums on valves and because it reduces acid contamination, is being marketed under the name Siloo by Petroleum Solvents Corp., 331 Madison Ave., New York City. Another product of this same manufacturer, Siloo Penetrant, is said to be suitable for street-lighting maintenance as a rust remover and inhibitor. It is a concentrate of chemicals that takes into consideration the many factors tending to cause binding of metallic parts, namely, grease, rust, gums, grit and general dirt. It is said to penetrate rapidly into the smallest and tightest-fitted crevices, and to free quickly rusted and gummed parts, bolts and nuts, seized parts, and battery terminals. The Broadway Maintenance Corp., the largest street-lighting maintenance organization in the world, uses this material in its street sign and street lighting maintenance departments in New York City for the removal of rust and accumulations of oxidation on metal fastenings and fixtures.

The manufacturer, in discussing Siloo, states that bearing failures in internal combustion engines, and particularly in diesel and sewage gas engines, are frequently the result of acid contamination. Since Siloo contains an acid neutralizer, and is not removed from the oil by oil filters, it greatly reduces the maintenance problem. Siloo is said to improve both starting and operation of internal combustion engines, because it dissolves gum formations, carbon binders, and sludge formations, and when used in the fuel keeps the tanks, lines, and systems free of gum, wax, water, and sludge.

WHY—

The above illustration shows the position of the rubber lining in

Bi-Lateral Fire Hose

when it is held in a flattened position between calls into service. This is why we can save a city one replacement, because the hose will give double the service of any hose constructed under the old method.

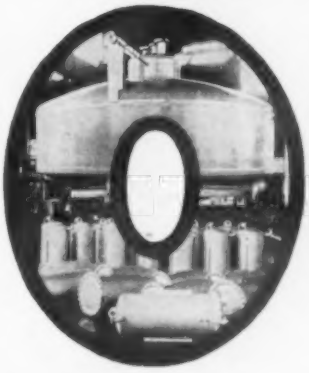
— Also —

We can load 25% more on the apparatus-bed, actually making an $8,000 truck loaded with the Bi-Lateral construction, cheaper than one priced at $7,000 when loaded with other construction.

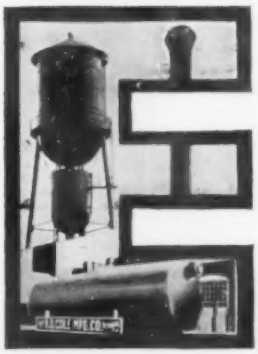
BI-LATERAL FIRE HOSE CO.

20 N. Wacker Drive, Chicago, Illinois

Tank Builders For Over 80 Years!



Tanks, Towers, Kettles, Kiers, Vats, Vessels, Bins, Boilers, Stacks, Standpipes and other fabricated platework from your specifications or ours.



Write for "Tank Talk" — 6-A, or let us figure on your requirements.

R.D.COLE MFG.CO.

Established in 1854

NEWNAN · · · GEORGIA

Think of it!

Unexpended balances of funds appropriated for supplies and materials were the highest in many years.

—From the story by W. S. Wendt, Milwaukee City Comptroller, in this issue of AMERICAN CITY.

Astonishing? Yes—yet familiar to dozens of city governments which use the Remington Rand Punched-Card Accounting Plan

● Reduction of waste, through Central Stores Control, is only *one* example of how Remington Rand Tabulating Machines are saving thousands of dollars for Milwaukee taxpayers every year. For Comptroller Wendt, by taking shrewd advantage of exclusive Remington Rand machine features, gets the greatest possible value out of the punched-card accounting plan, the greatest possible volume of *vital* information out of his compact, efficient Tabulating Division.

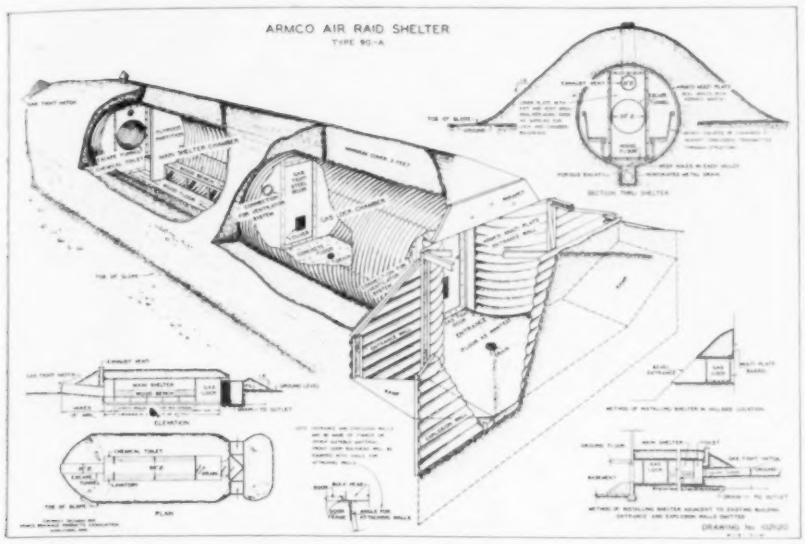
He tabulates Crime Statistics for the Police Department. He prepares budget sheets for the board of Estimates. He writes Purchase Orders, prepares Daily Stock Reports, keeps tab on 35,000 different items. Other municipal governments use these great machines also for writing Tax and Utility Bills and Receipts, for preparing Payrolls and Paychecks, for doing a complete Welfare Accounting job.

Today, *every* minute and *every* dollar saved, no matter how or where, is a direct contribution to victory. City governments, like private corporations, know from experience that Remington Rand Tabulating Machines deliver management reports with a *speed, accuracy and economy unequalled* by any other method available today.

We have the proof to back up this sweeping statement. Let us show you—we urge you to call our nearest branch office today, or to write or wire the Tabulating Machines Division of Remington Rand at Buffalo, New York.

Today . . . Look into REMINGTON RAND Punched-Card Accounting AND TABULATING MACHINES

(The Machines you can rent or BUY with impressive savings either way)



A Timely Bulletin on Air Raid Shelters

Air raids in this country are no longer considered improbable, particularly in our coastal cities and defense centers. Consequently, the subject of air raid shelters for both industrial workers and civilians is of keen interest. The office of Civilian Defense in Washington, D. C., is in process of issuing a bulletin on the subject with recommended designs. Simultaneously, the Armco Drainage Products Association, Middletown, Ohio, is publishing a drawing of a standard, full-round Multi Plate type of air raid shelter design which will be available to Defense Councils and other authorities.

Armco's interest in the subject of air raid shelters goes back to 1938, when the Armco International Corp. issued a booklet of suggested designs. Many of these corrugated metal structures have found their way into service in England and her colonial possessions, and more recently in the outlying U. S. air and naval bases.

Next came the construction of many hundreds of Multi Plate "igloos" for sheltering ammunition and other munitions in the various military encampments, bases, ordnance plants, and defense establishments. Meanwhile, the Fortifications Section, Chief of Engineers, U. S. Army, made various field tests on bomb shelters of various kinds and materials at the Aberdeen Proving Grounds. These have resulted in the designs for Multi Plate pipe structures now incorporated in the O.C.D. bulletin.

For public demonstration purposes, The American Rolling Mill Co., Middletown, Ohio, built a Multi Plate "bomb shelter" capable of holding 30 people, which it has demonstrated along with a simulated air raid warning by means of a loud-speaker device. This was displayed at the Sesqui-Centennial Celebration at Hamilton, Ohio, the Metals Congress at Philadelphia, the Automobile Show and Defense Exhibit at Pittsburgh, and for the townspeople in the various towns where the Armco plants are located; namely, Ashland, Ky., Zanesville, Ohio, and later scheduled for Butler, Pa., Middletown, Ohio, and elsewhere.

This bomb shelter, described in the folder entitled "5 Minutes in an Air Raid Shelter," differs from the most recent standards, but it serves the same essential purpose. A very limited number of copies of a 34-page, 11 x 17-inch booklet entitled "Armco Air Raid Shelters and Munition Storage Magazines," are available to civilian and military defense authorities and available for inspection by others. Inquiries should be addressed to Walter H. Spindler, Armco Drainage Products Assn., Middletown, Ohio.

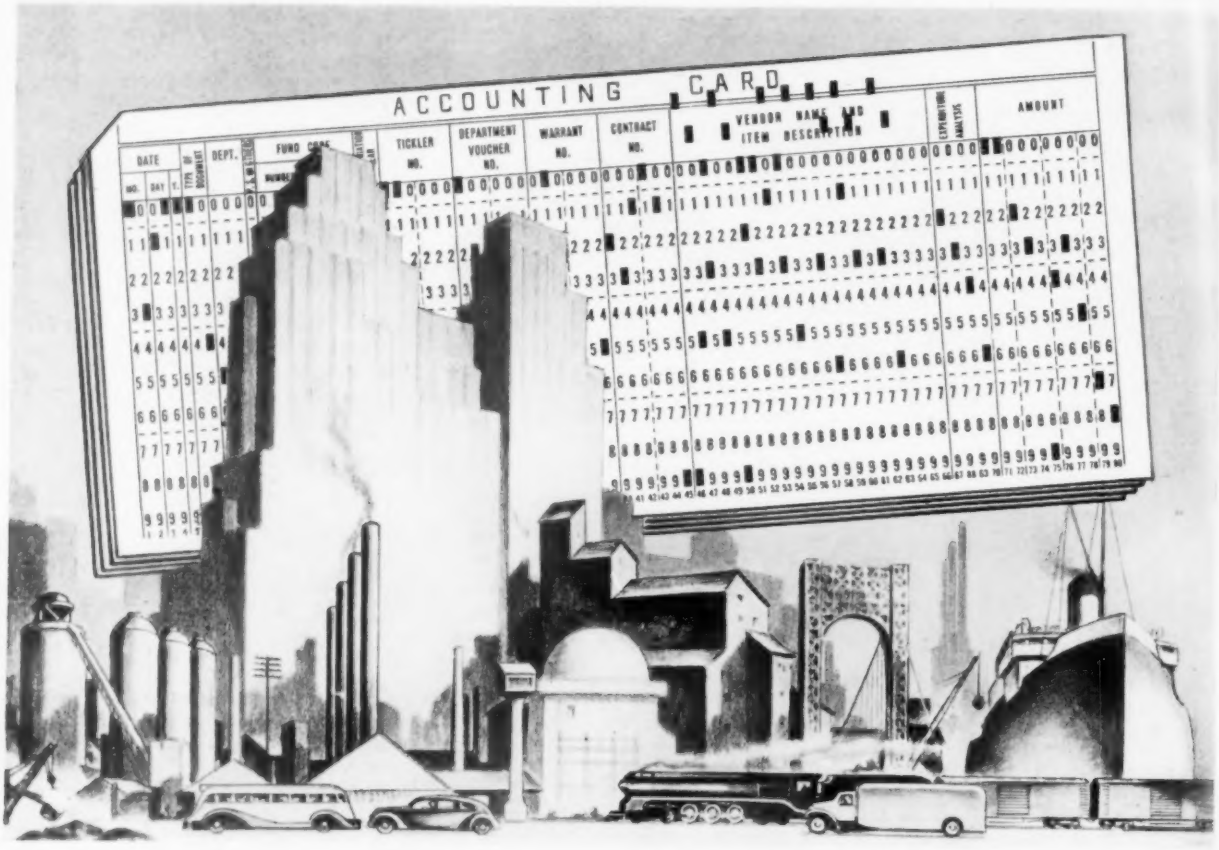
Ricketts of Neptune Dies in Accident

Arthur B. Ricketts, Vice-President and Director of Neptune Meter Co., 50 West 50th St., New York City, and its Canadian subsidiary, Neptune Meters, Ltd., was killed December 13, 1941, in an automobile accident near his home in Rockville Centre, Long Island. Since 1917, Mr. Ricketts had been the manager of the Neptune factory at Long Island City; and his long term of service with the company, dating from 1907, entitled him to membership in the Neptune Meter Company's 25-Year Service Club, of which he was secretary.

New Representative for Permutit in Ontario

Permutit Co. of Canada, Ltd., a subsidiary of The Permutit Co., 330 West 42nd St., New York City, has recently appointed S. A. McWilliams, Ltd., 60 Front St., West, Toronto, as its representative in the Province of Ontario. Permutit Co. of Canada, Ltd., continues to be represented in Montreal by C. K. McLeod, and in Winnipeg and Calgary by Stanley Brock, Ltd.

ARMY TWILL by REEVES SANFORIZED* MADE TO GOVERNMENT SPECIFICATIONS
REEVES Glengarrie POPLIN
For Better Uniforms Demand These Labels!
REEVES ARMY TWILL SCORES A HIT!
Men who safeguard our City require uniforms whose official appearance inspires public confidence. They must also withstand the strain of active duty. That's why Reeves Army Twill wins their praise. Specify this famous fabric in *your* uniforms.
Reeves Army Twill passes U. S. Govt. tests for strength, endurance and color-fastness. For fabric vitality it's a leader!
For matching shirts, GLENGARRIE POPLIN is equally popular. Both fabrics available in favorite colors—are Sanforized* against shrinking.
* Fabric shrinkage not more than 1%. (U. S. Government Test CCC-T-191-a).
See your nearest dealer for uniforms, sport and work clothes made from these famous fabrics, or write for leaflet to:
45 OVER 25,000,000 yards of Reeves Army Twill sold to the U. S. ARMY
REEVES BROTHERS, INC.
54 WORTH STREET NEW YORK CITY



Get all the accounting facts of all departments through punched cards

The Punched Card Method of Accounting provides government administrators with up-to-the-minute fact-pictures of activities, thus enabling them to maintain closer control. This modern method is now being successfully applied to the governments of many important American cities. The following is a partial list of the municipal departments whose work today is being facilitated by punched card accounting:

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EDUCATION	CENTRAL ACCOUNTS BUREAU	PURCHASES
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FINANCE	PARK DEPARTMENT	PUBLIC WORKS
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Investigate the advantages in speed, accuracy and economy which this modern method offers your city government. Your nearest International Business Machines representative will be glad to give you complete information. Call him today.

INTERNATIONAL BUSINESS MACHINES CORPORATION

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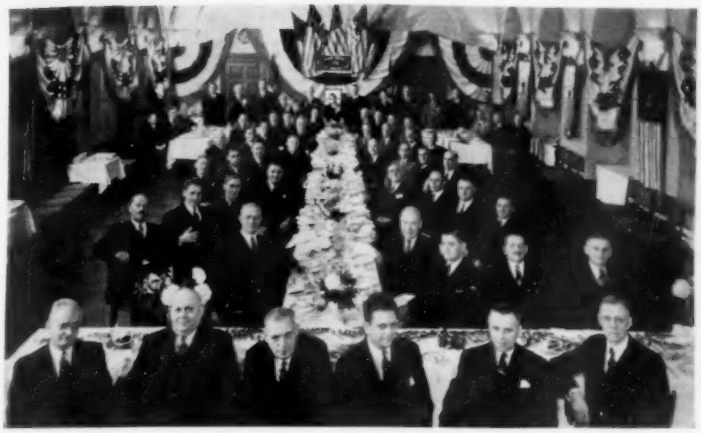
During January we hope you will remember to mention THE AMERICAN CITY.



The clan of 25-year service men of Neptune Meter Co., gathered at their Sixth Annual Dinner

Neptune 25-Year Club Dines Its New Members

Ten new members received emblematic pins and a hearty welcome at the sixth annual dinner of the 25-Year Service Club of Neptune Meter Co., 50 West 50th St., New York City, on the evening of December 6, at the Hotel Shelton, New York. The initiation of these new members into the club of veteran Neptune executives and employees in both the factory and sales force brought the total membership enrollment up to eighty-seven names Out of an active membership of seventy, there was an attendance of sixty-odd, including representatives from the Pacific Coast and the Southwest. J. R. Barker is President of the club.

Kotal Acquires Method of Aggregate Treatment

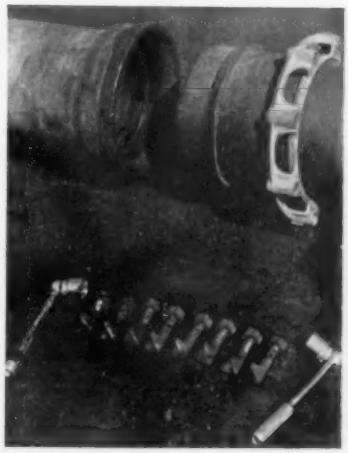
Announcement has been received from the recently organized Kotal Company, 52 Vanderbilt Ave., New York City, headed by Howard B. Bishop of Summit, N. J., that it has acquired the business formerly conducted by the Asphalt Treatment Corporation of 140 Cedar St., New York. Kotal Company manufactures a waterproofing agent for use on aggregates employed in asphalt highway construction and maintenance. Associated with Mr. Bishop in the management of the Kotal Company are Herbert P. Pearson, in charge of Production and Research, the same positions he held in the Asphalt Treatment Corporation, and Charles H. Welling as General Manager.

New F-M Diesel Book Now Available

"Modern Installations by America's Largest Builders of Heavy Duty Diesels" is the title of a new and attractive 80-page booklet received recently from Fairbanks, Morse & Co., Diesel Division. The booklet is largely pictorial in nature, illustrating a galaxy of Fairbanks-Morse stationary diesel installations in both municipal and industrial plants. Brief captions describe the many photographs.

For those municipal or industrial executives contemplating the use of diesel engines, this booklet offers a quick résumé of the use and service of this type of prime-mover. One feature of the book is a map of the United States on which are spotted the many hundreds of Fairbanks-Morse publicly owned diesel installations. A copy of the new book may be had by writing the company's headquarters office, 600 South Michigan Avenue, Chicago, Ill., on a company or municipal letterhead.

STOP
JOINT LEAKAGE



with CARSON MECHANICAL JOINTS
• CHARCOAL IRON BOLTS •
for Cast Iron Pipes and Fittings also Leak Clamps
WRITE FOR PRICES
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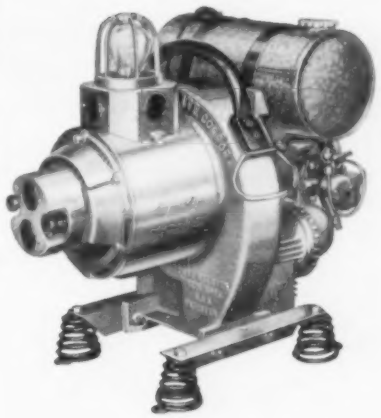
We have to
STICK BY OUR GUNS



You can't hedge on a pledge. And Homelite has pledged itself to deliver a staggering number of portable generators, pumps and blowers for the armed forces of Uncle Sam. This has forced us to tighten our belts and cut deliveries to our regular customers, down to a priority-governed minimum.

But Homelite makes this pledge to you. When you are able to get prompt deliveries of Homelite Portable Pumps, Generators and Blowers, you will get more advanced, more practical and more dependable units than ever before.

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CORPORATION
201 Riverdale Ave., Port Chester, N. Y.

MODERN ACCOUNTING

will help you meet the increasing cost of municipal services

National defense imposes heavier expenses and responsibilities on local governments, due to expanding activities and industries. Costs of police, fire, highway, health and other departments are increasing faster than tax revenues can take care of them. The result is that local governments are obliged to tighten up their tax collection processes with more efficient billing and accounting methods; to adopt a budgetary control which gives immediate access to costs and commitments.

In this work, Burroughs men can be of great help because of their experience throughout the years, and their knowledge of present municipal accounting problems. They offer a wide range of new Burroughs machines, developments and features that save time, effort and expense. For complete information, call your local Burroughs office.

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BETTER BUDGETARY CONTROL

When administrative officials have up-to-the-minute figures on revenues from various sources; on budgets, commitments and expenditures for every municipal department, they are in position to make quick decisions that mean vital savings to their communities.

BETTER TAX COLLECTIONS

Many municipalities can gain thousands of dollars a year by keeping more efficient tax records; by using better methods of tax collection. The money thus saved can be applied to today's increasing cost of municipal departments.

Today's **Burroughs**

DOES THE WORK IN LESS TIME—WITH LESS EFFORT—AT LESS COST

C. A. Orr, President
The Union Metal Mfg. Co.

Union Metal Celebrates Its Thirty-fifth Year

The November, 1941, issue of *The Monotube,* published by Union Metal Mfg. Co., Canton, Ohio, presents a picture of the growth of the company which is symbolic of American industrial development. It started in an idle broom factory 35 years ago on the present plant site in Canton, Ohio. Its first product was architectural columns of steel, a decided innovation at a time when practically all porch columns were wood or concrete. After achieving success in its architectural columns, in 1907 its first street-lighting standards were sold to Nashville, Tennessee.

In 1925 C. A. Orr, who had a long record in the steel industry, joined the company as General Manager, and the following year became President, an office in which he has continued right up to the present. Just as lighting standards were a turning point in the company's early history, the introduction and workability of heavier metals in the mid-twenties was the second turning point. Heavier steel meant greater strength, and longer sheets meant more uses. With this came the new name for its principal product—Monotube. With this development a new and varied line of lighting standards, and power transmission and distribution poles, came into being.

In the late twenties experimental foundation piles were made and offered to a railroad company which was building a new bridge near the plant. Monotube piling is tapered and made of various gages of heavy steel. Single piles can be formed up to 40 feet in length, and longer piles are obtained by welding extensions to the upper end. In this manner, piles up to 125 feet have been driven.

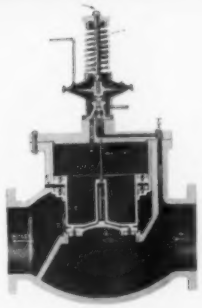
In 1926 the firm added a modern foundry, and today not only produces its own castings but makes commercial castings in wide variety. In 1938 steel floor bridging, widely used now in defense cantonments, was introduced; and even more recently Union Metal began production of Monotube antennae for radio transmitting stations. In the present World War, the company is doing its share in defense production, since its products serve defense needs in themselves, and in addition the company is producing 1,000-pound practice bombs for the Navy, is making numerous castings for other defense plants, and is expecting shortly to add still more defense duties to its activities.

Mirrored Glass Hoods To Serve Street Lights

What is believed to be a better street light is to result from the aluminum shortage, according to lighting engineers of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. A return to designs of several years ago could have been made, but this would have been a backward step. Some new way to maintain quality had to be found; and it was, in mirrored glass.

Although reflectors for street lamps had never been made of silvered glass, it has been found possible by new techniques to make one that would fit into a hood made of still-available sheet metal. The result is a fixture as good in performance as one with an aluminum reflector, and reported to be better in some ways. Because a clamping ring had to be used to hold the glass globe to the hood, the old aluminum unit cut off all light from the lamp above a 70-degree angle with the vertical. The new glass reflector unit does not have this limitation, and has a cut-off angle of 75 degrees, meaning that a much longer stretch of street can be lighted from single luminaires. Also, the glass reflector has a high reflection factor and can be returned almost to its original high reflecting power by simple cleaning, whereas an aluminum reflector decreases somewhat in efficiency with the years, especially in some atmospheres.

Stop Check Single Acting Altitude Valve



This valve installed in the upstream line automatically maintains a uniform water level within 3" to 12" variation to prevent any tank overflow; also, by means of the internal "stop check" piston assembly, prevents loss or return of storage water back through the valve—making the valve very desirable for use where metered water is purchased, or wherever it is imperative that there be no possible return flow.

This valve may be fitted with "Differential" Control for delayed opening, if desired.

Write for specifications and prices.

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Your **POLICEMEN** *and* **FIREMEN** *Look Better Feel Better*

When Wearing Long-Lasting UNIFORM SHIRTS

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And whenever hot lead is used, Sperry Lead Melting Furnaces are considered standard equipment.

Write today for complete details and prices.

Yes— **We can make PROMPT DELIVERY**

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A catalog that explains in detail the various types of watering equipment designed to keep your parks and parkways always fresh and green. Skinner System engineering and consulting service has solved every conceivable type of watering problem. We are equipped to handle your watering problems better at lower cost. A card or letter brings you the catalog and details of our service. No obligation.

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Every dollar that you give now to your Red Cross marches into the thick of things where humanitarian help is needed most—up to the fronts and battle stations where the fighting is heaviest. And throughout our broad land to train and equip volunteers to meet any emergency that may strike.

How this War Fund is Used

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Provides for the care of the Army and Navy, including services to men in hospitals and during convalescence. • Provides an important link between the service men and their families. • Provides essential medical and other supplies outside of standard Government equipment. • Operates Red Cross headquarters at camps and naval stations. • Enrolls blood donors and medical technologists for Army and Navy needs. • Provides millions of surgical dressings, sweaters, socks, etc. through volunteer workers.

DISASTER AND CIVILIAN EMERGENCY RELIEF • • $10,000,000

Supplies emergency needs for food, clothing, shelter and medical attention for disaster victims. • Assists stricken families in repair of homes and other adjustments; provides minimum reserves of essential relief supplies to prevent unnecessary delays.

CIVILIAN DEFENSE SERVICES • $ 5,000,000

Trains volunteers for home nursing and nurses' aides. • Trains nurses, men and women, for active duty with the Army and Navy. • Trains volunteers in First Aid and accident prevention, in Motor Corps, Canteen and Production. • Organizes for evacuation of children and their families from stricken areas. • Assists Red Cross Chapters in establishing effective coordination of emergency relief.

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Gives assistance and service to the 3,740 Red Cross Chapters with their 6,131 Branches responsible for local Red Cross activities.

OTHER ACTIVITIES AND CONTINGENCIES • • • • $ 6,000,000

New activities made necessary by unexpected developments.

TOTAL • • • • • • • • • $50,000,000

THE AMERICAN RED CROSS
$50,000,000 WAR FUND

Note to Red Cross Canvassers: Use this page to inform contributors how their donations are being expended.

This space donated by *The American City*

New District Offices on Pacific Coast

San Francisco and Seattle have been selected as locations for new sales and engineering offices by Merco Nordstrom Valve Co. and Pittsburgh Equitable Meter Co., of Pittsburgh, Pa. These offices have been opened as a part of the expansion activities of the two companies, to give increased service on the West Coast.

Russ Waters has been appointed branch manager of the San Francisco office, located in the Hobart Building, 582 Market St., where he will be assisted by Fred D. Webster, R. L. Ford, and Gilbert T. Bowman, who has been in the Oakland plant for several years. The Seattle office will be under the jurisdiction of the San Francisco sales office, and will be located at 110 West Denny Way. Frank P. Tangney and William R. Dominick will work out of the Seattle office.

Hereafter sales activities in the Bay District of California will be directed from the San Francisco office instead of from the companies' plant at Oakland. H. Boezinger, Vice-President, is in charge of sales for the entire Pacific Coast.

Inertol Moves Factory to Larger Quarters

The Inertol Company, Inc., manufacturer of bituminous compounds and colored chemical enamels for the waterproofing and protection of concrete and steel structures of all types, has announced the removal of its factory, laboratory, and general offices to 470 Frelinghuysen Ave., Newark, N. J. This move from its old quarters in New York City has been necessary because 16 years of expansion have left no room at the old location for additions to production facilities.

Infilco Booklet Describes Smooth Settling Clarifiers

"Quiescent Clarification" is the title of a new booklet issued by International Filter Co., 325 West 25th Place, Chicago, Ill., copies of which can be obtained by writing the company and requesting Bulletin 2450. The booklet defines quiescent clarification as the condition existing when an ideal combination of the design factors which influence proper settling in a sludge-removal mechanism is obtained. Such a condition is characteristic of Infilco clarifiers, according to the manufacturer.

Both small- and large-diameter clarifiers are described in this 12-page folder, and a number of pictures showing actual installations are included. Mechanical drawings illustrate important details. Of particular note are the new type of scum remover and the peripheral drive mechanism for larger clarifiers. The new Infilco Hydraulic Skimmer utilizes a flat circular plate to establish radial suction currents at the surface of the liquid. Scum is drawn toward a hole at the center of this plate, where it is easily removed for disposal.

Wabash
DOUBLE LID
METER BOX
COVERS

For meter pits where maximum protection against freezing is desired, WABASH Double Lid meter box covers have been first choice of water works men for many years. The Ford Lifter Worm Lock provides maximum convenience for the meter reader. The inner lid and sloping skirt provide maximum frost protection for the meter. • Wabash Covers are made for 15", 18", 20" and 21" tile, with three lid sizes, and in two weights. • Write for catalog and further information.

FORD METER BOX CO.,
SETTING AND TESTING EQUIPMENT FOR WATER METERS
WABASH, INDIANA

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VALVES

ALTITUDE VALVES
for
Control of elevation and heads into and out of tanks, basins and reservoirs.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.

REDUCING VALVES
for
Maintaining desired discharge pressure regardless of change in rate of flow.
1. Pressure reduction only.
2. Pressure reducing and reverse flow.
3. Combination assemblies —for control of pressure at inlet and outlet of valve.

SURGE-RELIEF VALVE
for
Maintaining safe operating pressures for conduits, distribution and pump discharge.

Ross Valve Mfg. Co.
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(From a Proclamation Adopted by the U. S. Conference of Mayors, January 14, 1942)

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Our job is to so set our individual communities in order, that there may be no delay, no confusion, and no hindrance in carrying out the work clearly set forth by the President and the Congress of the United States.

This task we will make the first order of business in each of our cities.

We will likewise inform our people of the sacrifices which all of us must make in the coming days and weeks. These sacrifices are but nothing compared to the contributions being made daily by the military and naval branches of the Government. They are on duty 24 hours a day and we, as civilians, must cheerfully work overtime.

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